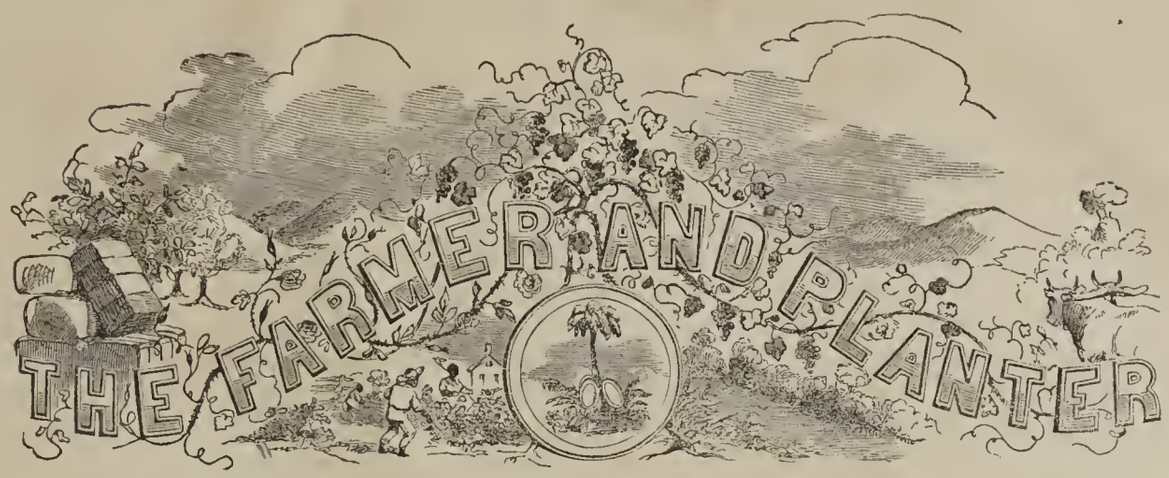

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R. M. STOKES, PROPRIETOR } COLUMBIA, S. C. { NEW SERIES VOL. 2 NO. 1.

For the Farmer and Planter.

IMPROVED BREEDS OF CATTLE---NO. 1.

NORTH DEVONS.

So many exeellent breeds of neat eattle now obtain amongst us, that we find it a difficult task to divest our pen of partialities, excited by the attractive features of each. In furnishing a series, from time to time, upon the neat cattle of the country, we will have much to say relative to the qualities of every breed. We have seleeted the North Devons for the present paper, because we have now had ten years experience with them, and find them admirably adapted to an improving system of agriculture. The middle-horned cattle of North Devonshire are, by British writers. elaimed to be the direct and unalloyed descendants of the aboriginal cattle of Great Britain. They now exist in the greatest purity in the distriet extending from the River Taw westward, along the seaboard of the British Channel, to a point east of Parrett, and land-ward by Barnstable, South Molton, Chumbeigh and Tiverton, to Wellington.—They are esteemed in their native district, in Norfolk, and other parts of the kingdom, for the *richness and volume of Butter yielded by their milk.*—They are favorites in other parts for draught; they have been tried in some districts for the improving of other breeds, with eminent success. They have yellowish-white horns, a pure rich red color, good symmetry and points. The color of the skin should be a waxey-yellow, the eye bright, clear and prominent, with a eircle of variable dark orange around it. The cheek should be small, and the muzzle fine; the nose should be clear yellow. A black, or black-streaked muzzle, is an infallible index of impure breeding. A strict serutiny at this point will settle many vexed questions of pure and impure breeding, in the North Devon, at a single glance.—In Ameriea the dark, rich red color, is the most popular. The very best cows for *handling* and *milk*, that we have owned, were the lightest, or pa'e red eolor. On this point Mr. J. TANNER DAVY, of South Molton, England, writes: "Many of the best Devons I ever saw, were of a light color. * * *

* The best course to follow is the *via media*—to get our eattle of a middle eolor—neither too dark or too light; we then combine the good elements of both. As to *white about the udder*, I eannot aeeount for it; and having been told by my father (who has bred Devons for fifty years,) and others, that it cannot be aecounted for, and knowing that some of *the best and purest Devons* that have ever been bred by all the breeders in the kingdom, have had white about the udder, I should not refuse a *good* animal on that account alone; but the white must be confined to that part alone." A thorough bred Devon is born with a pure red tail, which usually grows pure white, by the time it is six months old. However, many of the best animals always retain a mixture of red hairs in the bush. The assumptions of ignorant judges frequently do injustice to very fine bred animals, from not knowing these facts respeeting the colors of the North Devons.

But to return to our eattle: the hardy, beautiful, symmetrical, useful North Devons, and their claims to the attention of our agriculturists. They are, to our notion, better adapted to the improvement of our stock of neat cattle, than any of the English or European breeds. They are an original breed, and, without eross or admixture of blood, they have sustained an improving superiority amongst the best breeders, wherever they have been introdueed and

bred with care. The least admixture of Devon blood shows its mark, and it is so indelible that it can never be obliterated—the rich red color, and distinguishing peculiarities of form and carriage, always prevailing. There has been greater improvement effected by the use of the Devon cross, than by all other breeds introduced. The beautiful red, now styled "*native cattle*," of New England, are nothing but Devon grades. To those who sometimes assert that Devons are not good milkers, we point to those cattle, the best for all purposes in the world.

The Coke Devons, so long and successfully bred by Mr. Geo. Patterson, of Maryland, will compare with any breed of cattle in the world, for the abundance and fine quality of the milk and butter they yield. Beautiful in appearance, magnificent in their milking developments, they are admired and sought after, wherever they are bred. Mr. Patterson has been breeding forty years, with a view to improve and develope this desirable quality. He has succeeded most admirably, and to-day could present a herd of milkers which would astonish the English breeders. We had rather own a Patterson Devon as a milk-cow than a cow of any other breed, for we have both usefulness and beauty combined. When these essentials to utility, taste and fancy, are perfect, we want nothing more in a cow. We have found the pure Devons and their grades admirably adapted to the short and precarious grazing of the South. The milking Devons present the most attractive animals for gentlemen who only keep a cow or two in cities, towns and villages. Where they are confined to stables, and liberally fed on grain, they yield good returns of milk and butter. The use of a thorough-bred Devon bull will improve any herd of indifferent cattle in a short time, and the continued recurrence to animals of pure blood with good food, will soon wipe out the defects which careless breeding and illiberal keeping have entailed on so many of the herds of the South. We may be over-partial, but when we have good fair milking qualities, symmetry of form, beauty of color, thrift and hardihood of constitution, to back our fancies, we feel safe, and write down the North Devons as the best breed for the improvement of the degenerate herds around us. We have many herds springing up in the South, bred with the utmost care with reference to the best points of this breed, and with a view to their adaptation to our wants. Amongst these are the herds of Mr. Peters, of Georgia, and Mr. Wm. Summer, of Pomaria, S. C. The chance of obtaining *native bred and acclimated animals*, from such reliable sources, should not be under-estimated, when the fatality usually attending the acclimation of imported cattle is considered.

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For the Farmer and Planter.

COTTON-SEED AS A MANURE.

Mr. Editor :—I notice in the November number of the *Farmer and Planter*, some enquiries by a correspondent, and a few remarks from yourself, concerning the use of cotton-seed as a manure for cotton. My experience with its use is so limited, it is with some hesitation that I venture to offer a few statements in connection with my own views on the subject. There is so little inclination, in this locality, for experimental agriculture, that I am unable to offer anything material from the experience of others. It is true a few have made some attempts at using seed manure for cotton, but with little or no encouragement. It is, however, in general and successful use here, as a manure on both corn and wheat.

I will relate the manner in which a few persons have used this manure here, and enumerate the objections that have been made to it, making such comments as I can honestly endorse.

It has been generally used well decomposed, and dropped in a shallow furrow, as early as possible, in quantities not exceeding 10 bushels per acre. It is said that it injures the cotton, so as to leave a bad stand, causing it to die—that it causes the plant to "fire" in dry weather, and, if put in green, to interfere with the crop by coming up amongst the "stand" and over the bed.

The seed is generally well decomposed. This, Mr. Editor, is the first, and probably a material cause of failure. The seed should not be *decomposed*.—Destroy their vitality by allowing them to "heat" for a few days after being mixed with moist earth, or sprinkled with water, but no more. Decomposition produces a chemical as well as a structural alteration in the seed. The former is, with me, however, only a probable conjecture. The fact they lose nearly fifty per cent of their weight in the process, seems to me sufficient evidence in its favor.—I had the curiosity to weigh equal quantities of each, with the following results: A packed quart of dry green seed weighed over 11 ounces, a similar measure of dry decomposed seed over 6 ounces. The driest of green cotton seed, however, contains more moisture than dry decomposed seed, because they are highly charged with oil, which is destroyed by the heat of decomposition, and expended in the form of gas. This gas, if it does not act as a manure itself, might develope some latent vegetable nutri-

ment, already existing in the soil, that was awaiting such an application to become active; or it may be necessary for the beneficial transformation of the seed into "plant-food." Such being my views, I endeavor to put them in practice by burying the seed in a deep furrow, as soon as I feel assured that their vitality is destroyed. Consequently there is no danger of seed coming up so as to interfere with the stand. Had I a cotton-seed crusher, not a seed intended for manure should be taken from the gin-house until it had been crushed. There is no necessity for discussing here the advantage that well buried manure has over that which is put in a shallow furrow. I prefer deep manuring, especially for cotton.

Another cause of failure to obtain an increased yield is, in putting in the seed manure *too early*.—This assertion is in direct antagonism with the received opinions on the subject. It seems to me that both analogy and reason sustain the position. Cotton-seed fails to maintain its stimulating and nourishing properties through the crop season.—This is certainly demonstrated in its application to corn. There is a marked difference in the yield of corn where the seed manure has been dropped when planting, and where it was put in at the first plowing of the young stuff. I suppose the reason of it is that the "rotting" or "burning up" process occupies a definite time, after which the parched hulls are no better than so many dried leaves from the forest. And I would not give a pieayune for all the leaves in the forest, as manure, unless they were saturated with the liquids of the horse and cow lots. The mere fact of applying the seed as a manure to cotton can make no difference in these results.—This would teach us to apply the manure as late as possible. The precise time must be ascertained by careful experiment. It may be that the quantity of seed used per acre, or to the hill, has much to do with the permanency of its effects. The question has been asked repeatedly, and is yet open: What is the proper quantity of seed for manuring an acre? Ten, twelve, twenty and thirty bushels, have been suggested. I would like to record my vote in favor of at least thirty bushels. This amount I have tried on a field of 16 acres, and feel assured that the profits may be safely estimated at 50 per cent. The soil was run together so badly from the heavy and protracted Spring rains, (with no freezing weather to open the land) and the Summer so very dry, that the past year was very unfavorable for the use of manures of any kind. With a favorable Spring and ordinary seasons through the Summer, I do not think 100 per cent. profit too high an estimate for that quantity of seed.

A full-blooded guano farmer, mentioned to me, very recently, that he believed 30 bushels of cotton-seed and 20 lbs of guano, mixed, was fully equal to 100 lbs of the latter alone. About thirty or more bushels of seed, crushed if possible, and mixed with one-fourth of its bulk of stable or barn-yard manure, would free us from the guano-fever, and furnish at our own doors an unadulterated manure. It has been said that more than 10 or 12 bushels of seed will cause the plant to "fire," if dry weather should supervene. The past year's experience enables me to negative this assertion. My cotton looked as healthy as any during the whole drouth of last Summer. On the charge of killing out the stand, I am not prepared to express an opinion. The 16 acres mentioned was a "poor stand," but was no exception to the balance of the crop.

"SCRAPER."

For the Farmer and Planter.

COTTON-SEED AS A MANURE FOR COTTON.

Barnwell Dist., Nov. 15, 1859.

Mr. Editor—*Dear Sir:* In your Nov. No. of the *Farmer and Planter*, I see that "D" wishes some information on using cotton-seed as a manure for cotton. Below I will give him my experience on the subject:

I have generally used cotton-seed as a manure for cotton, and have always let it remain in a pen from the time I ginned my cotton until I was ready to plant, or a few days before, and if my land was broken up I run a furrow, with a six inch plow, about four or five inches deep, the distance I want my cotton rows, and put one peck of seed to a task row. I then cover it up, by running two furrows on it with a large shovel or a half shovel plow, which will cover it up, and form a fine bed for the cotton to be planted in; and if I apply it to land that has been planted the previous year in cotton, I run a furrow in the alleys with a six inch plow, and put the same quantity of seed to the task row, and cover the seed up with the same plow that I did in the land that was broken up. I know that one peck of cotton-seed to the task row will make as fine cotton as 80lbs of Guano will, for I tried both this year, in the same field. I did not weigh the cotton-seeded cotton separate from that which had been manured with the Guano, but it is my opinion that the cotton manured with cotton-seed made more cotton than that manured with the Guano; and I found the cotton-seeded cotton matured as soon as the cotton which had been manured with Guano. One peck of cotton-seed to a task row of cotton, will not make cotton grow very high, but it

will make it fruit finely. The next year, the same field planted in corn, will make 10 bushels of corn to the acre.

I think that any planter will agree with me in my system, because you get two crops from the same manuring, and it will make 10 bushel of corn on land that would not have brought more than 5 bushels, before it had been planted in cotton and manured with cotton-seed.

If you think, Mr. Editor, the above information will benefit "D.," it is at your service.

I remain, very respectfully,

HOMESPUN.

From the Valley Farmer.

EXHAUSTION OF SOILS IN THE CULTIVATION OF WHEAT AND CORN,

As shown by Chemical Investigation into the Composition of the Ashes of Each, Grown upon the Soil of Kentucky.

It is a fact too well known to the farmers of the older States, that there is a great falling off in the yield of wheat per acre upon their lands, which have been under cultivation for ten, twenty, fifty or more years. Indeed, in New England a large proportion of the land will no longer produce wheat at all, which, in the early settlement of the country, yielded full crops. On Long Island, and in other portions of the Atlantic States, after lands had ceased to be productive, the farmers, for many years, applied leached ashes—transported from Providence, Boston, and other cities—at the rate of 4 tons per acre, at a cost of $4 and upwards a ton.—For a long series of years, this application rendered the land again fertile; but the farmers had no definite knowlege of the elements extracted from the soil in the cultivation of their various crops, or of the nature and properties of the ingredients contained in ashes that again restored it to fruitfulness. They knew the fact existed, and hence they continued to apply the ashes (containing more or less lime) until they produced no beneficial effect; when ground bones and manufactured phosphates and super-phosphates in various forms were procured and applied in large quantities with wonderful advantage. Under a more enlightened system of culture, the fertility of these lands might have been preserved for ages to come, and without the expenditure of such immense sums of money in the purchase of foreign manures. It is a lamentable fact, that large tracts of our Western lands have been and are still cultivated upon this exhausting system, as is too evident from the great falling off in the acreable yield of wheat on these comparatively new lands. Wheat is the universal and the chief bread material of every civilized nation, and will continue to be, so long as the land is capable of producing it.

Experience teaches us that land which has been under cultivation a few years will continue to be comparatively productive in Indian corn; while it now produces hardly half the quantity of wheat per acr that it did when it was first brought under cultivation. The cause of this difference in the comparative productiveness of land, in the different crops, is explained by chemical investigations, which prove that the land contains but a limited proportion of certain essential ingredients for the production of wheat; while, for instance, with Indian corn, the essential properties are found in the soil in greater abundance. This, in part, explains the reason why corn is sometimes grown for a number of years in succession upon the same land, with but comparatively little falling off in each succeeding crop.—Another very important fact bearing upon this point should not be overlooked by the farmer, viz: That wheat is chiefly grown for market, and is shipped to remote parts of the world. This wheat contains, as we shall shortly show, an immense amount of the indispensable ingredients taken from the soil, that will never be returned to it; and the continued improvements in the means of transportation, by railroad and other facilities, are constantly increasing this draft upon the productive capacity of the land. Besides this transportion of the life of the land with the wheat crop, the straw, which might be employed as a medium for restoring much of the wasting elements of the soil, is too often suffered to go to waste, or is consumed at once by fire. But with corn the case is otherwise. This grain is chiefly consumed upon the farm, by the hogs, cattle and horses, and in part goes back to the soil, while the stalks and husks remain upon the field, to be turned under for the support of future crops. All these, as well as the straw of wheat, might be employed to a great advantage in the manufacture of manure, under a more careful and systematic mode of management.

We have recently been furnished by Dr. Robert Peter, of Lexington, Ky., with some valuable facts touching this subject—the result of the chemical investigations which he is carrying on with his analysis connected with the Geological Survey of the State. These facts and figures are the result of an examination into the composition of the ashes of white wheat, compared with those of Indian corn; showing by comparison the relative quantities of the essential mineral ingredients which these two grains withdraw from the soil on which they are grown, and their comparative influence in gradually exhausting its fertility.

Dr. Peter proceeds to remark, that "some white wheat, thoroughly air-dried in the laboratory, was reduced carefully to ashes, and the ashes analyzed; and the results, as compared with the analysis of the ashes of Indian corn grown on similar soil, were as follows:

ASHES OF WHITE WHEAT.

	In 100 parts.	In a bushel.
Potash	0.454	0.2724
Soda	.011	.0066
Lime	.136	.0816
Magnesia	.202	.1212
Oxide of Iron and Manganese,	traces,	
Phosphoric acid	.760	.4560
Sulphuric acid	.007	.0042
Chlorine	.029	.0174

Silica	.034	.0204
Carbonic acid and loss	.081	.0486
Total weight of ashes	1.714	1.0284
Proportion of phosphate of lime,	0.246	0.1473
Proportion of phosphate of magnesia,	.562	.3372
Proportion of phosphoric acid in the alkaline phosphates,	.295	.1776

ASHES OF INDIAN CORN.

	In 100 parts.	In a bushel.
Potash	0.2878	0.1612
Soda	.2204	.1244
Lime	.0076	.0043
Magnesia	.1287	.0721
Oxide of Iron and Manganese,	traces,	
Phosphoric acid	.4230	.2369
Sulphuric acid, trace,		
Chlorine, not estimated,		
Silica	.0250	.0141
Carbonic acid and loss	.3195	.1789
Total weight of ashes,	1.4120	0.7919
Proportion of phosphate of lime,	0.0139	0.0078
Proportion of phosphate of magnesia,	.3584	.2001
Proportion of phosphoric acid in the alkaline phosphates,	.1870	.1049

"By careful comparison of the preceding columns of figures it will be seen:

1st. That wheat contains a rather *larger proportion of ash* than Indian corn, and hence, in equal weights of the grain, withdraws more of the valuable ingredients from the soil than that.

2d. That the principle difference is in the *phosphates*, of which the wheat requires a larger quantity than the corn.

3d. That, as already stated by Boussingault, and other European chemists, the Indian corn is remarkably deficient in lime, as compared with wheat.

In relation to the alkalies, viz: Potash and soda, taking the sum of the two (as they no doubt are frequently substituted one for the other in the ashes of plants)—the difference in the two kinds of grain does not appear to be great.

"Now, when we understand that these several ingredients—potash, soda, lime, magnesia, phosphoric acid, &c., &c., are not *merely accidental* ingredients of these grains, but *essential* elements, which are found, by numerous analyses, to be always contained in them in remarkably regular proportions, in whatever region the grain may be produced; and that however, or wherever corn or wheat may be planted, these ingredients must exist in the soil, or no crop can be raised, when, moreover, we reflect that the quantities of these valuable mineral matters removed from the soil in these grains, tend so much to diminish the usually limited proportion, which is naturally contained in it, we can understand readily why the raising of grain crops, *without manure, gradually and certainly exhausts its fertility.*

"We can see, also, from the above comparative table, the fallacy of the prevalent idea, in this country, that the "small grains" do not impoverish the soil, but rather tend to improve it. It is true that a *change of crop* is often beneficial to production; but the experience of England, and the older and poorer portions of our own country, shows that the "white crops" (wheat and other small grain,) are amongst the most exhausting—requiring the most careful husbanding of manures.

"To make the comparison more easy between the exhausting influence of wheat and Indian corn, I give, in the following table, the relative quantity of essential ingredients removed from an acre of land by an ordinary crop of these two grains, without regarding, at present, that taken also in the stalks, leaves, husks, cobs, straw, chaff, &c., which also contain them.

IN A WHEAT CROP OF TWENTY BUSHELS, EACH OF SIXTY POUNDS.

	lbs.
Potash	5.448
Soda	.132
Lime	1.632
Magnesia	5.224
Phosphoric acid	9.120
Sulphuric acid	.084
Chlorine	.348
Silica	.408
Carbonic acid and loss	.972
Total	20.568
Quantity of phosphate of lime,	3.6815
Quantity of phosphate of magnesia,	8.4300
Quantity of phosphoric acid in the alkaline phosphates,	4.4250

IN A CROP OF CORN OF FIFTY BUSHELS, OF FIFTY-SIX POUNDS EACH.

	lbs.
Potash	8.060
Soda	6.220
Lime	.215
Magnesia	3.605
Phosphoric acid	11.845
Sulphuric acid, not estimated,	
Chlorine, not estimated,	
Silica	.705
Carbonic acid and loss	8.945
Total,	39.495
Quantity of phosphate of lime,	0.390
Quantity of phosphate of magnesia,	10.005
Quantity of phosphoric acid in the alkaline phosphates,	5.235."

From the above comparison it will be seen how important it is that all the straw from a wheat crop (as well as the straw, &c., from other crops,) should be restored to the soil, either in the form of feed, litter for yards and stables, or directly to the field;

as well as to employ every other appropriate means to maintain the wasting fertility of the soil, under constant cultivation.

In Pennsylvania, the German farmers have wrought wonders in their soil, by the application of lime, in connection with a regular rotation, including clover. In Kentucky and some portions of Tennessee, the farmers have a considerable advantage over those of the prairie States, from the fact that the limestone of these States abounds in the phosphates; and which, from the action of the weather, is constantly giving off these ingredients to the soil, which, in the latter, when the natural supply becomes exhausted, must be restored by artificial means. The soil of England has long since been exhausted of these ingredients, and to restore which (in the form of bones, guano, &c.,) frequently costs, for a single crop, more per acre than the value of an acre of wheat upon our prairies.

From the data here furnished, in connection with the analyses of the soils of various portions of Kentucky, as exhibited by Dr. Peter, in the State Geological Report, it would be a matter susceptible of the clearest demonstration as to the period required to exhaust the several ingredients contained in these soils, under the usual mode of cultivation.—This, in some portions of the State, has already been determined by practical experience; for even some of the soil of the best portions, has already, from injudicious management, parted with so much of these essential ingredients, as to be hardly worth the cost of cultivation. But the calculation referred to would be an interesting one, not only to the farmers of Kentucky, but to those cultivating a soil abounding less in those important properties found in the soils resting upon the fossiliferous limestone.

From the American Stock Journal.

ILLUSTRATIONS IN NATURAL HISTORY.

We were walking on the shore of Staten Island with a gentleman, who had paid some attention to the science of comparative anatomy, and observing a little bone on the beach, we asked him if he could tell to what animal it belonged. He looked at it without picking it up, and replied, "Yes, that is the inside lower bone of the right fore-leg of a dog."—(*Sci. Am.*)

How powerful are the illustrations of the uniformity of Nature, which the science of comparative anatomy affords! Though the difference be great between the huge St. Bernard and the tiny poodle that whines for its coveted seat upon the lady's lap, yet "the inside lower bone of the right fore-leg" will readily distinguish either from any animal not of that particular *species* of the genus *Canis*. So indellibly is the law of type impressed on the species, that no accidental circumstance, no lusus naturæ can make a dog a fox, or a fox a dog, or even cause science a doubt of the species to which its bare and disjointed skeleton belongs. The well known feat of Agassiz, accurately describing a fish as it lived in long past geological eras, from the evidence afforded by a single scale, is but a simple illustration of this fact. The scale was put into his hands; it was of a quadrilateral form, about twice as broad as long, hard, bony and inflexible, and covered on its exterior surface with an agate-like enamel. From the shape of the scale, he inferred that of the fish; it must be broad in proportion to its length; therefore its motions were sluggish, its habits were inactive, it lived and fed near the bottom of the stream or pond. In short, he drew a perfect outline of a fish, in shape like the common sunfish, covered with enameled scales, like the garpike of the western rivers, and gave a full description of its nature and habits.

This complete adaptation of every creature to its peculiar manner of life has led some skeptical persons to observe that an animal, finding its limbs adapted to a particular mode of life, naturally adopts that life, and follows, by a power akin to reason, the suggestions which Nature makes. But the variety, the beauty and permanency of these adaptations must convince every attentive observer of the fallacy of such a theory. Why do the ducklings, though hatched by a hen, disregard the earnest remonstrances of their mother, and launch out upon the element for which they are fitted? Can any one believe that it is because they find webbed feet suitable for swimming? or is it an *instinct* in harmony with their physical structure. The mole, with its shovel-like fore-paws, "may be said to swim through the earth," so perfect is the arrangement by which he burrows his way, just underneath the surface. The South American sloth, with its strong limbs, enormous claws, and long flexible neck, was formed for the life he lives, among the branches of tropical forests. Or why else was he not formed with his long claws and stout limbs, clearly pointing out to him his manner of life, and left without the flexible neck, which renders his only mode of progression available in obtaining his food?

These physical adaptations may be arranged under three heads, viz: adaptations—1st, to modes of progression; 2d, to methods of defence; 3d, to their manner of obtaining food. Those having reference to difference of climate may mostly be classified under the above heads, and therefore these three only will be briefly illustrated.

The bone called by anatomists the *sacrum*, is composed of several spinal vertebra solidly joined together. It serves as a support to the hip joint in all animals whose mode of progression is by land. In man, it is thick, strong and heavy, as is necessary for supporting the body in an erect position. In the orang-outang, the bear, and others capable of progressing in an erect position, the sacrum has a corresponding strength; while in all quadrupeds, except such as are mentioned above, it is narrow and contracted, though still solid. But in the beaver, which uses his tail so powerfully for progression and in the construction of its edifices, the bones which form the sacrum are disconnected in such a manner that the hinder part of the body, as well as the tail, is perfectly flexible. The veins in the bat's wings, which are necessary to the health of these distant extremities, and yet are beyond the sphere of the heart's influence, are endowed with a power of contraction and dilatation, supported by the presence of valves, which completes the circulation.—Birds that "roost" or sleep while they support themselves upon the branches of trees, are provided with muscles, in such a position, that the action of

bending the legs in sitting, causes the toes to clasp the branch firmly, and thus support the bird without effort.

Animals are provided with many beautiful and appropriate defences against injury—injury, I mean, of all kinds, as well that inflicted by the merciless elements, as what they may be called upon to suffer from other animals, or from man. The plumage of birds is an example—sometimes light, and composed of large feathers overlying each other to shed rain; and at others presenting a thick mat of down, which water can never penetrate, however long the exposure. The sting of the insect, the bite of the serpent, the horns and fleet foot of the deer, and the terrible strength and majesty of the king of beasts, all warn off attack, or furnish the means of escape. Musquitoes and flies are kept at bay by the long, tufted tail of such animals as are subject to their attacks; but the musk ox, living in a frozen country, where he enjoys immunity from these plagues, has *no tail* to ward them off. The American bison is covered about the head and neck with coarse, shaggy hair, which reaches almost to its feet, but those parts within reach of its tail need no such defence against insects. No animal lives completely at the mercy of its enemies, but in some way or other is enabled to escape their attacks.

The differences with reference to the food consumed are more numerous and striking, perhaps, than in any other respect. Animals may feed upon vegetables, other animals, or upon insects, and for each class, as thus divided, a different organization is necessary. Herbivorous animals are provided with sharp front teeth, to pluck their food, and flat-surfaced molars, with a peculiar grinding motion of the jaws to reduce it to a pulp. Some also which chew the cud are provided with two stomachs—one to hold the food just gathered, from which it is disgorged to undergo mastication before it passes to the proper, or digesting stomach. Carnivorous animals are furnished with strong teeth and claws, the means of capturing their prey, and suited also for tearing it into pieces small enough to swallow, either whole, or with little mastication. Insectivorous animals, as the bat, ant-eater, &c., are furnished with peculiar means of capturing their prey, which else were beyond their reach, and have sharp, *conical* teeth. The common crossbill has an apparatus for gathering its food which might have suggested his shears to the first tailor, so exactly does it imitate them in its action and use. With these it clips the hard cones to pieces, and picks out the hidden seeds, which are its chief nutriment. Certain serpents live upon the eggs of birds. Their teeth are few and weak, for if the egg is broken in the mouth, for the want of flexible lips, its contents must be lost; if it be swallowed whole, as is easy with such jaws as the serpent possesses, digestion is impossible. But the egg *is* swallowed whole, and is slitted open by a bony process from a spine of the neck which protrudes into the gullet, and is covered with enamel. The teeth of squirrels, &c., who feed on hard-shelled nuts and other food requiring sharp teeth, are composed of enamel on the front surface, supported by the softer bone which forms the body of the tooth, and which wears away faster, leaving the thin surface of enamel projecting in a sharp edge. The teeth are also continually growing during the lifetime of the animal, that they may never be deprived of what is so necessary to their existence. If by accident a tooth is destroyed, its opposing tooth in the other jaw grows without limit, sometimes to an almost incredible length. The teeth of the hyena, who is satisfied with the *bones* which the lion leaves him, are *models* of hammers for breaking stone. The powerful pincers of the large land crab of the Keeling Islands, described by Mr. Darwin, serve him well in procuring his food from the cocoa-nut. "He tears off the husk, fibre by fibre, and always from that end under which the three eyeholes are situated; when this is completed the crab commences hammering with its heavy claws on one of the eyeholes, till an opening is made, then turning round his body by the aid of its posterior and narrow pincers, it extracts the contents." "The strength of the fore-pincers is great; an individual was confined in a tin box, the lid secured with twine, but the crab turned down the edges and escaped; it actually punched many small holes quite through the tin."

These are but a few of the wonderful illustrations which might be brought forward to show the perfect adaptation of structure of animals to their condition in life, and of the Supreme Wisdom which for extraordinary ends adapts the most simple and effectual means.

From the Country Gentleman.

ORGANIC MANURES---PLOWING IN GREEN CROPS.

It is probable that most of the readers of these remarks are aware of the chemical distinction made in all plants, between the organic and inorganic substances of which they are composed, but as these terms may not be entirely understood by all, we have concluded to make a slight digression, in order to explain this simple matter, which has unavoidably been often referred to in previous articles. The organic division consists of an organic structure, produced by nature, which cannot be artificially formed. On examining any plant, it will be seen that it contains a certain super-structure, composed of pores, veins, &c., which has been formed by life and growth, and as it is impossible for us to create life, it is equally so in regard to its remnant, which is organic matter. If a plant, tree or animal is burnt, a combustion takes place, in which the largest part of its substance is carried off in the air, leaving a small proportion (ashes) which will not burn. Thus the organic is separated from the inorganic matter by fire, which is one of the means used to effect this purpose, as by its influence in causing the combustion of the organic, it separates it from the ashes or inorganic parts, which remain unaffected by fire.

The organic or vegetable matters have been entirely overlooked and disregarded by most scientific researches, while the inorganic portions or ashes have, in proportion, been entirely over-rated, so much so that but for the experience of practical men, who have seen the necessity of applying bulky manures, consisting of organic matters, our farmers would have been sadly led away by this homœpathic plan for enriching their farms.

We will venture to say that the mistake made by scientific and well-informed men, in this particular, has done more to prejudice the minds of many against their instructions, than any other cause.—This scientific hobby appears to have been so much ridden of late, that it is now past its zenith, and its followers are glad to withdraw with as little publicity as possible, although unwilling still to bend the knee to those who, from their mistakes, have learned to pursue a clearer course. We think all scientific, as well as practical men, must agree that the organic constituents of plants are at least as necessary to their growth as the inorganic, which matter settled, it must be easily granted that no soil can be kept in a fertile state without the application of vegetable manures, unless it is assumed that all requisite organic substances can be obtained from the air. This theory has been advanced, but no reason can be brought for its truth, in all cases, though we are aware that certain plants are enabled to gain by far the most of their constituents from that source; hence the great advantage of green fallowing, as it is called, in reinstating the soil with these substances so necessary to vegetation. Fallowing is also resorted to for this purpose, but with far less beneficial results, as by this system the soil only regains those trifling constituents from the atmosphere which it naturally attracts, while if green crops are sown, their hungry mouths are always distended, by which to obtain the nourishment which they will eventually yield up for the enrichment of the soil in these organic elements.

A great many that would otherwise try green fallowing for the improvement of their lands, are deterred, from the fact that it has been of late much recommended by scientific farmers, and is, consequently, thought by many to be a new theory, improved either by science or practice. This mistake has heretofore presented a barrier which has only now in part been removed by the statements of the European agriculturists, whose instructions for the last few years have operated so beneficially upon the public mind.

The practice of plowing under green crops is indeed a very ancient one, and has attracted the early attention of civilized man, more or less, from the time of Xenophon, who wrote as early as four hundred years before the commencement of our era.—He recommended green plants to be plowed into the soil, and that plants should be especially cultivated for that purpose; these, he says, enrich the earth as much as dung. Most early writers on agriculture recommend the lupin very highly for this purpose, and it is extensively cultivated at the present day in the south of France, in Spain, Italy, and in Tuscany, as a fallow crop.

In all parts of America the value of plowing under a stiff sward for Indian corn is well understood, and almost universally practiced; but with the exception of this, green fallowing is rarely undertaken, and when it is, is often attended with so little judgment and discretion that it frequently proves a failure.

Green crops not only enrich the soil by their own decomposition and fermentation, but they cause the decomposition of any woody fibre which may be buried near the surface, and which is useless in an undecayed state, so far as immediate effect is concerned. They should be plowed under, if possible, just before they come in flower, or as soon as practical after that stage, as at that time they contain the largest amount of soluble matter. If left to stand longer, although they may gain in nutrition, they proportionably exhaust the fertility of the soil, and are less useful as a manurial agent, on account of their less speedy decomposition, and the loss which naturally accrues from this cause.

Their effect is the most surprising on poor, light and sandy soils, such as are frequently utterly devoid of vegetable matters.

Lime is a valuable agent in causing the speedy decomposition of these crops. It should be applied broadcast just before they are plowed under, or immediately after, and harrowed in. On clays it is particularly beneficial, as it joins with the decomposing plants and exerts a strong mechanical influence. The following qualities are requisite in all plants which are to be used for this purpose:

1. They should flourish on poor soils.
2. Should require little labor of cultivation.
3. Have cheap seed.
4. Be of quiet and sure growth.
5. Stand all weathers and vermin.
6. Run their roots deep.
7. Bring up such inorganic matters from the subsoil as the succeeding crops require.
8. Should smother weeds, and
9. They should produce a large quantity of herbage that will readily decay in the soil.

It will be said that a plant containing all these qualities can hardly be found, and we grant it; but should advise any one who wishes to carry out this important system of manuring successfully, to obtain crops which will possess as many of these desirable qualities as possible, and then, "our word for it," if the matter is systematically carried out, success will be almost inevitable.

The crops usually used for this purpose may be enumerated as follows:

Grasses of all kinds, clover, lucern, buckwheat, rye, maize, oats, teazel, rape and turnip tops.

G. T H.

From the American Stock Journal.

GOOD COWS.

Too high an esimate can scarcely be put upon a perfect cow.

In attempting to describe her, I shall be guided by my own observation and experience.

The first quality to be attained is a strong physical constitution, and capacity to eat what is offered her at all seasons of the year, and yield the greatest return of good milk for family or dairy purposes, from a given amount of food consumed. Without an appetite she is worthless, and nearly so, without the faculty of converting her food into a good quality of milk. The latter depends much upon the strength of her coustitution to endure our severe climatory changes, and changes of diet, which occur often during the milking season.

Indications of such a constitution are, thick, mellow skin, seemingly loose upon the frame, or bony structure, with hair silky and soft, corresponding with texture of her skin; a bright projecting eye,

indicating vital stamina to search for and obtain requisite food, requiring more or less endurance in all good grazing districts, and depending much upon the mechanical or bony structures, to combine strength and action. Wide, flat bones, short in the lines between joints, broad across the loin and hips; deep body, straight back, length and depth of quarters in proportion to those of the body, are indications of strength and power of locomotion.—The loin, or small of the back, is the centre of motion in all four-legged animals, It should, therefore, be carefully observed, in judging of their strength and power of endurance.

The quality of milk is an essential item in estimating the value of a cow for general use.

Cheese-dairymen usually select cows that yield the largest amount of milk, because they depend more upon the quantity of cheese than its quality, and milk is known to make a good yield of cheese that would make but little butter, and poor at that.

But I am not in favor of the rule of selecting cows that yield the most milk per day or season, in arriving at a proper standard of excellence for the best cow. As there is, comparatively, a small proportion of the cows in the country used for cheese-making, to those used for milk, butter, beef and breeding, I am of the opinion that we should put the highest estimation upon the best qualifications for the most general uses.

The quality of milk a cow will give, is indicated by hair and skin, such as first described, and yellow color of the skin, inside of the ears, and other parts of the animal not thickly covered with hair. I have never known a cow, with soft, fur-like hair, and mellow skin, appearing yellow and gummy at the roots of the hair, when parted with the hands, and rough, dandruffy escutcheon, that was not a good butter cow, and, when fattened, would mix tallow well with flesh. Having been accustomed to fatten my cows that failed for dairy purposes, by age, or otherwise, for many years, and being on the look-out for causes of known results, I have observed that those known to give good milk, made most thrift in tallow when fed to fatten. Hence, the conclusion, that cows that handle well in what the butchers call tallow-joints, may be judged to give rich milk, the quantity to be judged by a plainly marked design of nature, in her physical structure. As effeminacy is a universal characteristic of a milk-givins race, it should be deemed an essential one in the cow. Instead of "heavy head, horns, neck and shoulders, and comparatively light hind quarters," which is characteristic of the opposite sex, she should show an opposite design, by a feminine countenance, light head, neck, shoulders and fore-arm, widening backward in her chest to the loin and hind quarters, where the most strength is required,

Large veins leading to the udder, and ample provision in and about it to receive a large flow of milk, are also prominent marks of nature's design. Her feminine marks should not point to weakness in her constitution. It may be taken, as a general rule, that the more masculine, or male-like, her appearance, the less apt is she to be a deep milker.

As the qualities of a perfect cow, for dairy or family use, require thrift and strength of constitution, she will be able to transmit those qualities to her offspring, and is, therefore, a good breeder.

The disposition and mechanical structure of the cow, for convenient use in milking, are, also, prominent items in her account of superior excellence.

Her limbs should not be so short, nor her bag and teats so long, as to be liable to drag against her feet in traveling, or be stepped on in rising from a lying posture, or mop up the filth of the stable, or require an uncomfortable attitude in the milker.

A perfect quietude, and willingness to be milked and handled in various ways—standing up from the ground high enough to keep a well spread set of medium sized teats, clean, sound and easy of access—with soft, mellow, copper-colored teats, milking easy, and not liable to chap, and land, or light udder after being milked, are all essential traits in the character of a perfect cow. As the last estimated value of the cow is with the butcher, her aptitude to fatten and turn out well, after being no longer profitable for milk, is to be taken into her credit account.

From the Valley Farmer.

CITY SEWERAGE.

Cities are the great consumers of the country.—There is an incessant flowing of the products of the country into the cities, and with these the fertilizing elements of the soil, imparted to it by the hand of nature, and which are never restored to it again.—These continued drafts upon the store-house of nature finally exhaust the supply, which can only be restored in part by artificial means, and at an immense cost. These facts are fully proved by the history of the older countries, some of which have become deserts, and no longer capable of sustaining a population; while others, exposed for a shorter period to this exhausting process, are in part restored to fertility by the application of artificial manures, often transported long distances by sea.—These are chiefly furnished in the form of bones and guano.

The guano imported into the United States amounts to more than $12,000,000 annually, and this is chiefly consumed by the old Atlantic States. Forty ships and other vessels carrying 30,000 tons of guano have discharged their cargoes at the port of Baltimore, Md., between the 1st of January and the 1st of July, 1859. And it is estimated that the importations into that port alone will exceed 40,000 tons, which, at the government price of $60 per ton, is equal to $2,400,000, to which add freight, storage, and other incidental expenses, will swell the amount to $800,000 more. But, in England, containing a larger population, upon a much smaller surface, the amount expended for manure is almost fabulous, amounting to the enormous sum of $300,000,000 annually, being more than the value of all the foreign commerce. The quantity of Peruvian guano in store at one time, the present year, in England, was estimated at 300,000 tons, worth upwards of £3,000,000 sterling; and the quantity imported, both in that country and in the United States, would be largely increased, but for the impositions practiced upon the American and English consumers of this article, by the Peruvian government, which claims the ownership of these deposits,

and monopolizes the trade. But while these large sums are being paid for foreign manures, immense quantities of fertilizing materials are allowed to go to waste at home upon the farms, as well as through the natural channels in the cities. Some of this great waste it is impossible to arrest, while much of it might be secured by the employment of proper means.

The fertilizing materials that flow annually down the river Thames into the sea, from London and other cities on its banks, is estimated equivalent to 100,000,000 bushels of wheat. Last year this vast accumulation of decaying matter produced such a stench in the city of London as to endanger the health and life of the inhabitants near its banks, and the present season it has been equally offensive.—Efforts are now making to utilize the sewerage of this great city, by employing it as a manure.—Of the precise plan that is to be adopted of securing this end, we have not been informed. A plan is already in operation in Edinburgh to apply the sewerage of the city to fields in the neighborhood, with wonderful success. It is then applied by means of irrigation, and, though the sewerage water, when applied, is greatly diluted, its fertilizing effects are most extraordinary, and are found to be great in proportion to the quantity applied. This has been undertaken as a sanitary measure, under the direction of the English General Board of Health, and although the present plan of applying it is not free from objection, on the score of nuisance to the neighborhood, the Board think these objections may be entirely obviated by improvements in the mode of application, suggested by past experience. Thus it seems that in order to maintain the health of the population of these cities, the authorities are compelled to preserve this vast current of fertilizing matter and apply it to its legitimate office, which would otherwise go to waste in the unfathomable ocean.

But when circumstances in this country will warrant the expense of securing these rivers of manure, for the purpose of applying it to the land, or when necessity will demand it as a sanitary measure, are matters of time. But one fact is certain: there are large quantities of fertilizing matters in all our cities that are allowed to go to waste, that should be converted into manure, and applied to the neighboring lands. Even in the great city of New York, where the sweepings of the streets, and the bones of the butchers' stalls, and the hotels, and eating-houses, are carefully preserved and applied to the land, a vast amount of manure, not only in the form of sewerage, but the richest materials, in the most concentrated form, of dead animals, and other similar offal are cast into the docks and allowed to be swept into the sea, because no convenient mode has been adopted to dispose of such a mass of offensive matter, and convert it into manure, while less valuable materials are eagerly sought, and used for this purpose.

The lessons taught us by the experience of other countries, as well as by the older portions of our own country, are that economical and successful farming requires that every owner of land should look well to the manure heap, and suffer nothing to be lost that can be appropriated as food to growing crops.

NO "WORN-OUT" LAND.

It is a great point gained in a right course to call things by their right names. In agriculture, as in other matters, we are often misled by the use of phrases that convey false ideas. One of these, for instance, is the term "winter-killed," as applied to wheat; it should be "*water*-killed." There is no Winter, probably, severe enough to kill wheat, unless there is too much water in the land. As long as we say "winter-killed," we comfort ourselves with the idea of a Providential dispensation; but when we say "water-killed," we understand that the evil can be remedied, and we go to draining our lands.

So it is with the expression "worn-out lands."—When men are persuaded by the constant use of this expression that their lands are "worn-out," they become very willing to sell out, and sacrifice valuable property for the benefit of those who understand the matter, and they themselves start off in search of such as are not "worn-out." Let it be understood that there is no such thing as worn-out land; that the expression conveys a falsehood; that even with our present lights, it is a very practicable thing, with a moderate degree of intelligence and skill, and no very large amount of means, to restore these lands to any degree of fertility they have ever possessed. This lesson has been well learned in Maryland, and a large portion of Virginia, but our Southern friends of the Atlantic States, judging from our exchanges, have yet to learn it. Let them be told then everywhere, and constantly, that *they have no worn-out lands*—that, in fact, their lands were intended *to last forever*, and will last forever, and feed and clothe them and their children for a thousand generations. Yet our able contemporary, the South Carolina *Farmer and Planter*, says, "It has just come to this point—we must go down hill, or go West—we can't stay here any longer, and live by planting without improvement." Let our friend tell his subscribers that here in Maryland we have tried all the alternatives, we have been "down hill," and many of us have been "West," and have abandoned both one and the other for "improvement," and *know* that that is the best thing.

We are led to these remarks by a letter in the *South Countryman*, written by the Rev. Mr. Best, of Cass county, Ga., an intelligent gentleman, who, after some years of farming experience, in one of the finest portions of Maryland, has made a large purchase in the former State, and is, we have no doubt, reaping the advantage of his earlier experience, and giving those about him the benefit both of wise counsel and good example, in the way of improvement. Mr. Best tells of the extraordinary increase in value of lands in Maryland, by the mere use of clover and plaster; of farms which, twenty-five years ago, could be bought for ten and twelve dollars, being worth now fifty, sixty, and eighty dollars per acre, and fully worth the difference, estimating by the increase of product; fifty bushels of corn per acre after wheat, and thirty bushels of wheat per acre on fallow, are, by no means extraordinary crops. The same may be said of other sections where lime has been the only extraneous matter added; Mr. Best relates his own experience in the use of Mexican Guano, and its extraordinary re-

sults; the marvellous effeet of Peruvian Guano is even more familiar; we have seen a tenfold inerease of crop from a single dressing, showtng all the difference between almost absolute sterility and the highest degree of fertility. Now what we wish to point out is the absurdity of speaking of sueh lands as "worn-out," and the folly of using a term whieh eonveys a very erroneous idea. Take the case of the land improved by the use of plaster and elover. Here is nothing whatever added but a bushel of sulphate of lime per aere, for a few sueeessive years, and the result is the differenee between six or seven bushels and thirty bushels of wheat, and fifteen and fifty bushels of eorn, and all the differenee between no grasss at all and one-and-a-half tons of clover.—If it is said the wheat and corn eome from the elover, then where does the elover eome from? Not surely from a bushel of plaster. The whole matter is, that in adding what is a mere atom eompared with the bulk of soil to whieh it is applied, we have done all that was required for a very high degree of fertility; a thing simply impossible, were the soil in the least defieient or "worn-out," as regards all the other essential elements of wheat and eorn, and other erops.

The method of improvement suggested by Mr. Best is, without question, the true one; the deeper plowing and elover growing. "I will sow elover-seed," he says, "every month in the year, until I find out the right time." Permanent improvement, on a seale of any extent, without deep plowing (a depth of at least eight inehes) and the growing of elover, or some good substitute, we eonsidsr out of the question. If there is any other method, we know nothing at all about it.

Many thanks to our brother of the *American Farmer* for coming to our reseue. We don't want to go down hill, or go West—we want to stay here and bring about sueh improvements as will make our people eontented, and anxious to do likewise. We are glad to meet one who has been down hill and out West, and heartily assures us that there is a way to get out of the darkness.

We commend the sensible suggestions of our eonfrere to our readers, and hope they may profit by reading them.

Let us pray no longer to Hereules, but put our shoulder to the wheel.—Ed. F. and P.

A Missouri Farmer.—Maj. W. C. Connett, living in Buehanan Co., 13 miles from St. Joseph, Mo., raised, last year, 60 tons of hemp, 12,500 bushels of eorn, 5,000 bushels of oats, and 150 tons of hay.—In addition to this he put up 80,000 lbs of pork, and sold $600 worth of butter, eggs, fruit, &e. His net profits amounted to $12,000. Maj. Connett is a Virginian, and when he purehased his farm, his taxes were only $1.60.

Soeiety seldom forgives those who have diseovered the emptiness of its pleasures, and learned to live independent of it and them.

SOMETHING TO BE THOUGHT OF.

The U. S. *Economist* has an article on International Trade, that contains mueh that should not be, yet *is* overlooked by many who write upon the poliey and probable results of excessive importations. England manufaetures, henee she is a depot for the raw material and produee of the eommereial world. The United States produces a surplus of food, material for manufaeture and gold. This surplus in large proportion goes to England and the eontinent. The great interehange has been between England and the United States, and this natural intereourse has progressed as follows: Exports from England to the United States in 1842, $17,117,219; in 1852, $79,116,289; in 1856, $106,083,112; in 1858, $67,812,921; exports from the United States to England in 1842, $38,234,511; in 1852, $110,803,055; in 1856, $160,741,372; in 1858, $156,009,200.

Thus, the exports of the United States to Great Britain have been largely in exeess of the quantities taken from her. These exports have embraeed gold, whieh, in the last ten years has beeome a staple mining production, and export of the United States. The figures for British exports do not inelude gold, as a matter of eourse, sinee they represent only British produetions. For the same reason the United States exports do represent gold, whieh is a United States production. The fund aeeumulated in London to Ameriean credit by this large exeess of exports is drawn against from all quarters, in payment of goods imported from other eountries. These bills draw gold rapidly from London in years of active imports into the United States—more partieularly in years of short harvests in England. When the English harvests are short, she is required to remit gold, in the purehase of food, and in those years the sales of Ameriean breadstuffs beeome aetive; they stimutate larger purehases of goods, wines and silks of France, &c., and for these purehases, the bills running on England for payment, swell the amount of gold drawn from her.—The English trade with the north of Europe has not inereased in the same proportion as the United States trade in the same direetion—as follows: Exports, England to north of Europe, in 1842, $92,041,012; in 1852, $102,591,207; in 1856, $170,451,021; in 1858, $185,189,688; exports, United States to north of Europe, in 1842, $27,556,652; in in 1852, $39,370,307; in 1856, $68,637,310; in 1858, $61,581,104.

The inerease of England's exports have been mostly to her own eolonies—more partieularly to Australia and New Zealand. The eourse of trade seems annually to beeome more elearly marked as between the produetion of manufaetured artieles and raw and tropieal produets. The largest portion of the inereased exports of the United States are food, eotton and gold. The imports of merehandise from Europe and England are neeessarily the produets of their industry, which are the only means with whieh they can pay. We have a surplus of materials, of manufaeture, of food and of gold. If we sell any or either of these artieles, elearly the pay must be had in other eommodities; and manufaetured goods are the only medium in whieh England

can pay. Unless intercourse between the two countries is stopped altogether, we must take pay in manufactures; and the more liberal the terms on which those goods are received, the greater will be the amount of our sales. It is the custom to ascribe the periodical revulsions which occur to "over imports," by which is meant, that we have imported goods to an amount greater than the proceeds of the article exported will discharge; and that, as a consequence, the volume of the currency here is reduced by the too extended export of coin, involving a fall in prices and great mercantile losses. This is, however, not the cause of the evil. The revulsions grow out of the fact that the goods are sold on extended credits, which depend upon a thousand hazards, the leading one being the chance of the crops. If these are bad, the goods are not paid for. If they are good, and do not find vent abroad, the results are the same. To assume that persons who buy on credit, and buy because they get credit, will take less on such terms if the duty is 5 or 10 per cent. higher, is simply absurd. While long credits are the means of extended sales, no rates of duty, however high, would affect the extent of sales to the value of a dollar.

From the Ohio Valley Farmer.

DEEP PLOWING PULVERIZATION OF THE SOIL, AND DRAINING.

The corn crop has suffered in many places from the effects of the continued heat of July, and we are again admonished that, in regard to our modes of tillage, *something is yet to be done*, before the farmer can feel satisfied with his treatment of the soil.—When we look over a field of corn, and see the blades curled, twisted, and contracted inwards, we may rest assured that something is wrong, either in regard to the condition of soil, or in the manner of tending the crop. To enable the corn crop to encounter successfully the evils of a drouth, the soil should be plowed at least fifteen inches in depth. This is not all; it should be well drained and pulverized.—When all this is done, we shall have performed some of the duty we owe mother earth, for the feed and support she gives us. If the soil be treated in this way, it will become surcharged with moisture by the spring rains. And this "treasure" of moisture will be ready for a day of need.

By deep culture, thorough pulverization, and drainage, the soil will be placed in a suitable condition to imbibe a large amount of moisture directly from the air. And it will moreover appropriate to itself the Summer rain, so that little will pass away over the surface. The falling rains will sink into the soil, and permeate through every part of it.

When vegetation first starts forth with vigor in the Spring, he who practices shallow cultivation is disposed to think that such culture is as good as any. The seed he places in the ground vegetates rapidly, and his prospects for a good crop seem flattering. But in mid-summer when a scorching sunheat pours down upon his soil, he will be able to see the difference between his own shallow culture and the deeper culture practiced by his neighbor.

It is really painful to walk out over a field at this season of the year, and witness the cracked and parched appearance of the soil, where an improper system of shallow cultivation has been pursued.—But the army of good farmers is annually increasing; and we hope the day is not far distant when we shall no longer see such painful sights.

In addition, however, to *draining, deep plowing*, and *pulverization*, one thing more should not be forgotten, and that is *mulching*. We need something to prevent the moisture from passing out of the ground by evaporation. When the moisture leaves the ground, we want it do so *through the plants we cultivate*. Good gardeners use straw, half-rotten weeds, sand, and other substances for a mulching. But of course such appliances, on a large scale, are out of the question. But an excellent mulching can be made by the soil itself. If two inches or so of the top soil be kept loose, and always stirred after a rain, so that no manner of crust appears, the end will be accomplished. Indeed, this is all the *late* culture that a corn crop needs. A slight surface culture—not so deep as to interfere with the roots—by a five-toothed cultivator, or the *hand-hoe* itself, will keep up that dark green color, so characteristic of health.

And in time of drouth, after this mulching of loose dry earth has been secured, we believe the soil should not be disturbed at all, if there are no weeds to destroy. Letting the field alone for two or three weeks, or till a rain comes and produces a crust again, we believe to be the better way. When a field is tended by a bull-tongue shovel plow, or other implement that tears up the roots of the corn, it is important then to keep the plow all the while going; at least as often as once a week, or once in ten days the field should be gone over. If not, the lateral roots of the corn become so large that, when torn off by the plow, they cause the corn to fire and turn yellow. To prevent this, some who cultivate in this manner, when circumstances have caused too long a time to elapse between the plowings, have gone through every alternate space, so that the roots are torn off on one side only. In two or three days the other spaces are plowed, by which time new roots have been thrown out on the opposite side of the row.

But this whole system of tearing and breaking the roots of the corn plant, we regard as simply *barbarous*. By *frequent* deep plowings, you may force the roots of the corn downwards, and keep up a healthy green color to the blades; but if the roots were permitted to spread out laterally, as nature designed, thus bringing them more in contact with the air, and the fertiliziug substances with which it is always laden, we believe it would be far better. The food that is needed to develope the corn, is derived largely from the atmosphere. And if we would have large crops of grain, as well as stalks, we must let the roots, the mouths of the plants, be in a position to take in this food from the air.

Many merchants advertise that we can buy of them "at cost." When we make the trial, we find that we buy of them at very great cost.

The passion of acquiring riches in order to support a vain expense, corrupts the purest souls.

From the Working Farmer.

CHANGE OF FOOD FOR CATTLE.

Nature seeks variety, and with almost as great pertinacity as she insists on progression.

The continuous use of salt food by man produces scurvy, while the entire absence of either salt or animal food produces other classes of diseases, and refuses to build up an organism capable of enduring disease.

All those things which, by analysis, an animal is found to contain, must, of necessity, form part of its food, or it cannot be perfect, as an organism; therefore, no one kind of food can produce as perfect an animal, developing all its functions equally, and a variety is distinctly called for. The very instinct of an animal shows this fact. The cattle breeders of England can scarcely be said to have succeeded, until after the introduction of the various root crops, and still we find many cattle breeders in America, who have never raised roots at all, and who continue to feed their animals on hay and corn alone. The same area of land used by a herd of milk-cows for pasture, when appropriated to a proper variety of crops, will cause them to furnish thirty per cent. more milk, and of a better quality, than when they are confined to the use of one or two kinds of food only. For the same reason that horses flourish best when traveling over an undulating country, rather than when perambulating the plains, viz: the other sets of muscles are brought into action when they leave the road level, and thus a single set of muscles is not called on to bear the whole fatigue. So with the variety of food; their digestive functions are in turn appealed to, and all the constituents required by the body are in turn furnished, so that a healthy result is the consequence. It is true that cows fed on carrots give better milk in Winter, than when fed on other kinds of food, but if fed on carrots alone, they soon loose their highest state of health.

Look at the cows in the distillery stables of New York, where they are fed altogether on swill, (the name given to that portion of the grain not transformed into alcohol by fermentation) in a very short time the very membranes of the animal become so tender that they fall to pieces, and are generally diseased. Is this because the residuum of the still is not the proper food for cows? Far from it; no food is better, provided it be used in part, and not exclusively. Mr. John Wilson, at the Wallabout, had as fine cows, and in as fine condition, as any man in America, and with as profitable results; he fed them on the residuum of his distillery *in part*, but at the same time *in part* on the various roots, hay, &c., and none of the difficulties arising from the exclusive use of the swill, were to be seen with those cows. Carrots have a value far beyond that which can be attributed to the mere nutriment they contain, for in addition to what they furnish in this way, they contain a quantity of pectic acid, and this carries the property of gelatinizing the vegetable and animal matters held in solution, and thus enabling the peristaltic motion of the intestines to seize hold of their contents, so that digestion of all matters of food is perfected by the presence of carrots. If the horse be fed in part on carrots, he ceases to evacuate the undigested shells of oats, bits of hay, &c. His dung is as homogeneous almost as that of a man, and it is for this reason that a bushel of carrots and a bushel of oats, are better for the horse than two bushels of oats—not from the nutritious matter contained in the carrot, but in part from the power of the carrot to cause all the nutriment of the oats to be appropriated in the making of muscle, instead of part of it being evacuated in fæcos. This action is true in regard to all the vegetable substances which go to make up the variety of food for animals; and the very instinct of every animal gives evidence of this truth.

From the South Carolinian.

RHODE'S SUPER-PHOSPHATE OF LIME.

Mr. Editor:—My attention has just been directed to an advertisement of Rhodes' Super-phosphate of Lime, as a "standard manure," which appeared in your paper, at a time when I was too busily occupied with other matters to notice it. Occupying the position I do, as Secretary of the State Agricultural Society, I am not disposed to allow my name to be used as an endorsement to the value of a manure about which I know so little. A reference is generally considered an endorsement, and I therefore, feel called upon to give the facts, and leave *others* to draw the conclusions. In November, 1858, I selected for experiment, with Rhodes' Super-phosphate, a light gravelly soil, which had been worn out many long years ago, grown up in pines, and again cropped for the last ten years in cotton and wheat. On plat A, one acre, I sowed fifteen bushels cotton-seed rolled in 250 pounds Rhodes' Super-phosphate; this was the levellest portion of the field, a somewhat sandy plat, part of it made by the debris from the adjoining slopes, and part of it worn down to the red. The yield of wheat was very good, good enough to pay for the investment. On plat B, adjoining, but a little more denuded and broken, I sowed fifteen bushels cotton-seed; the yield was not equal to plat A, by the difference in value of the phosphates, or more. On plat C, I sowed wheat without any application of manure; the yield was below B, and the wheat inferior. On plat D, one acre, adjoining A, I sowed and plowed in with the wheat 250 pounds Rhodes' Super-phosphate—the effect was hardly perceptible in the yield of the wheat. A portion of this plat was identical in soil to plat A, a portion of it red clay, badly worn and undulating.

Corn.—I selected an acre of land which *had* been worn out, but was now in good heart. I applied, on five rows alternately, Rhode's Super-phosphate at the rate of 200 pounds, Peruvian Guano 120 pounds, in a furrow, next the corn, about the time of "bunching to tassel." I could see no marked difference in the rows; nor do I think the increase in the yield paid for the fertilizers.

Cotton.—I tried an application of Rhode's Super-phosphate combined with Guano, (150 pounds Super-phosphate to 30 pounds Guano,) scattered in the furrow, and bedded upon; alongside, in same field, applied 70 pounds Guano in the same way. I could see no difference in favor of the combined application, either in the growth or yield of the crops. I selected 40 rows in another field, on either side of

a ditch, and applied to one section 70 pounds of Guano; to the other, 100 pounds Rhodes' Superphosphate. The Guano rows yielded 1,269 pounds seed cotton; the Super-phosphate rows yielded 1,229 pounds seed cotton—being at the rate of 800 pounds per acre. The guanoed rows matured first, and had less frost-bitten cotton.

On potatoes, sweet and Irish, I applied at the rate of 250 pounds per acre, and was not able to see any remarkable effect from the application. On melons, cabbages, squashes, it seemed to have very little effect. It is but proper to say that my section of country suffered from drouth very seriously; we had no rain for seven weeks. Still, I think that there was rain enough before the drouth set in, and after it ended, to render soluble a "standard manure," and make it make its mark upon the crop more plainly than it did. R. J. Gage.

HORSE-SHOES MUST BE BEVELED ON THE GROUND SURFACE.

An iron shoe tacked on a horse's foot, says the *American Veterinary Journal*, is one of the unavoidable evils of domestication, yet, when properly applied, is not so great an evil as some persons might suppose. One of the objects in applying the shoe, is to preserve the natural concavity of the sole of the foot. A horse in his natural state, and, indeed up to the period of his first introduction within the precincts of the "smithey," has, generally, a concave sole; and wisely is it so ordained. Were it otherwise, the animal would be unable to secure foothold; as it is, the inferior edge of the hoof—that is, the ground surface—projecting beyond the sole, may be compared to the point of a cat's claw, or the nails of a man; they grasp, as it were, bodies with which they come in contact, and thus secure a point of resistance, which aids in advancing limb or body, over a smooth surface. Now, in order to preserve the natural mechanical functions of the horn and sole, the ground surface of the shoe must correspond to the ground surface of the foot; that is to say, the ground surface of the shoe must be beveled, cup fashion; its outer edge being prominent, takes the place of the hoof; its inner surface being concave corresponds to the natural concavity of the foot. It is a custom among some blacksmiths to reverse the above procedure, and place the concave surface next the foot; and often the ground surface appears to be more *convex* than concave.—In justice, however, to that much-abused individual, the shoer (who is not always at fault), we remark, that often he is not allowed to use his own judgment, for, as some people believe, "anybody can *Doctor!* a horse," so an equal number have an idea that they know all about *shoeing* him, and men will often stand over the smith, and direct him as to the form of shoe and manner of securing it to the foot.

Notwithstanding men's various opinions on the general art of shoeing horses, we think that all will sooner or later agree with us that a beveled, or cup-shaped, ground surface, is the best. We care not what may be the form of the foot, whether it be high or low heeled, contracted at the heel, lengthened or shortened at the toe, or having a concave or a convex sole; it is all the same. The ground surface must always be *concave*. In every other part of the shoe, improvements and alterations are suggested, and, indeed, required, in consequence of the ever-varying form and action of the horse's foot under the state of health and disease; but, on the inferior surface of the foot, we are presented with a pattern for the ground surface of a shoe which no man can ever improve on, and if we were to follow that pattern more closely, there would be fewer accidents in *falling*, and less lame horses.

From the Southern Rural Gentleman.

THE TRUE QUESTION IN PORK RAISING.

We must claim that the issue be made on the true question as to the best hog for the Southern planter, and the best mode of keeping. It does not follow because Mr. A. makes the most pork per hand, that he has the best hog. We will not be driven from the true question, and no unkind hints need be made.

Mr. A. is very attentive to all his interests; he gives a personal attention, which makes amends for any inferiority in the animal. Mr. B., on the other hand, although he may not give much of his personal supervision, yet he provides a great abundance of feed. He has his oats and his wheat, his pea fields and crab grass pastures—he has withal a fine range. These gentlemen may make more largely of pork than Mr. C., wherefore forsooth their hogs are "the best in the world."

It is not whether a Woburn hog, or a Chester county hog will or will not make 300 or 500 lbs of meat, but it is what stock will make the most pork, in the same or less time, on the same or less food. We ask what other point is needed? We can point to one more, though we will be met with objectors—the muscle in the pork—because we believe the Southern planter will be bettered by muscle instead of all oil.

We have seen it stated that a hog, say a Chester county, would make as much meat as two of the small Suffolks. We say it matters not to the point in question if we admit it. But the question is, will the Chester consume as much as the two Suffolks? Will it make the same quantity of pork fit for the smoke house in the same time as do the Suffolks? Again, is it wise to even then risk all in one hog, or shall we prefer two chances to one?—We will not be forced to adopt any plan as the best for any animal as the best, and not have a chance at the best. We have fed a hog ten fair sized averaged ears of corn, and every grain eaten up in our presence, by that hog, before leaving. And we will produce a hog, said to be the best stock, which will do it, and no one shall know of the contemplated trial until the instant—so as to prevent any preparation—the hog may weigh 175 pounds, and we have no idea that two others weighing 150 each, will eat six ears each.

We like white hogs when in fine condition, although we know they are not so hardy; yet we prefer a thrifty, quick feeder, early maturing hog, with some deficiency, to the slow feeder, or equally slow maturing. Three hundred pounds of pork at one year is cheaper than 500, aye 600 in two years, because the year old hog eats more than the six months, and the interest and risk a clear loss.

From the Valley Farmer.

ALTERNATION OF CROPS.

That a regular and systematic rotation of farm crops is absolutely necessary to secure permanent fertility of the soil, and to the husbandman the most profitable returns, we think can be clearly established, not only by the experience of the best farmers in this country, and more particularly in Europe, but by the operations of nature herself.

Every observing farmer is well aware that certain crops never prosper well two or more seasons together on the same land—that there is a manifest falling off in the product.

Now, it is of primary importance that we should endeavor to understand, if possible, the cause of this phenomenon. The question, therefore, has long engaged not only the attention of the most sagacious farmers, but of many distinguished chemists and philosophers. By these it has been regarded chiefly in two points of view:

First, by an immutable law, nature has provided for each species of plants a specific food, suited to its organization and its wants. Thus some soils will not grow wheat or other farm crops, although abounding in the common elements fertility, and although they will make a profitable return in other farm crops, in consequence of their being deficient in the specific food required for the perfection of the wheat, or other particular species of crop. This is true in regard to wheat in portions of New England and other States, although once particularly productive in this grain. One family or species of plants requires a different food from that which another family or species requires, and it seems to be another law of nature, that what is not essential to one family or species, is particularly adapted to other families or species. It seems to be provided, that where the general fertility of the soil is kept up, the specific food of any class or species continues to accumulate till they return again to the same field of this particular crop. Thus it is supposed to require eight or ten years for the specific food of flax to accumulate sufficiently for a second crop, after one has been taken from the field. Even the specific food of clover becomes exhausted by a too frequent repetition of it in the same field, it being found necessary on some soils to subtitute for it some other crops or grass, so that it may not be repeated oftener than once in six or eight years. There are exceptions to the rules of practice which these laws inculcate. Some soils seem natural to wheat, others to oats or grass, and successive crops of these are sometimes taken without apparent diminution of product, but which cannot always continue. This is undoubtedly owing to a super-abundance of the specific food in the soil which these crops require, and which will ultimately become exhausted. It is therefore, always better to regulate our practice by general laws than by casual exceptions.

If farmers will but carefully observe the operations of these laws in nature, they will readily see the importance of an established system of alternations of crops. If we notice the grasses in our meadows it will be seen that they are subject to change.

It will, also, often be obsered, that after removing certain crops from a field, and that field is allowed to remain uncultivated for a single season, an immense growth of weeds of certain kinds will spring up that had never before occupied the same ground.

The timber trees in the forest alternate—new species springing up as the old ones decay, or are cut down. For instance, in many countries, if the prevailing timber be pine, and is cut off or removed by age and decay, oak will spring up in its place; or if oak occupy the soil, pine will next succeed, and so of many other varieties. In forests of a more mixed growth, as in Kentucky, and some other Western States, this change goes on, though from the great variety of timber, it is less apparent and striking.

That the subject may be the more clearly understood, the generality of tillage crops have been reckoned under two heads or classes, differing essentially in their character, culture, and exhausting influence upon the soil. These two classes are denominated *culmiferous* crops, and *leguminous* crops.—The first is so named from *culm*, the stalk or stem, such as are usually hollow, and supporting the leaves and seeds. This class includes wheat, barley, oats, rye, Indian corn, tobacco, cotton, &c.—These are particularly exhausting in the production of their seeds, and hence are sometimes termed "robbers," or exhausters of the soil. If these are cut green, or while they are in blossom, they are far less so.

Leguminous crops, literally, are peas, beans, and other pulse, but here the class is intended to embrace all which are considered ameliorating or enriching crops, as potatoes, turnips, carrots, beets, cabbages and clover. These latter are not only less exhausting than the culmiferous class, as most most of them do not mature their seeds, and all on account of their broad system of leaves, draw more or less nourishment from the atmosphere, but they improve the condition of the soil by dividing and loosening it with their tap and bulbous roots. For these reasons they are called ameliorating or enriching crops, and when they receive manure, as they should, and culture after the drill system, they are peculiarly adapted to improve and fit the soil for the culmiferous class of crops. No correct, profitable system of farming, therefore, can be carried on where the culmiferous and leguminous crops do not alternate or follow each other in succession, except when grass is made to intervene, and it matters little which crops are selected from the two classes. But the interest of the farmer will determine this. With us, in the West, clover must be the chief reliance in extensive farming, though potatoes, in some sections, may come in to advantage.

From the character of our crops, and their peculiar adaptation to our soil and climate, our system of rotation must necessarily embrace a less number of years, and be the more frequently repeated than in England, and other countries of Europe, where Indian corn is not grown, and where the various root crops are so important to successful husbandry, hence the greater necessity with us of adhering to the best system that can be adopted, and bringing in clover or its equivalent, as often as every four or five years. Indian corn, rye, buckwheat, &c., may be sown and turned under, while green, to great ad-

vantage, as ameliorating or improving crops, and requiring less frequent repetition of clover.

Second.—In addition to the exhausting nature of certain crops, it is contended by intelligent cultivators and vegetable physiologists, that each plant has certain peculiar excretory matters, which it constantly deposits in the soil in which it is grown—matters which are supposed to be particularly noxious to other plants of its own species—that in consequence, (until these are decomposed and removed from earth by other plants, or by the gradual effects of decomposition,) the same crop cannot advantageously prosper in the same soil. There are numerous facts that seem to go to the support of this doctrine. It is known that water in which plants and other bulbs have been grown, will not support other bulbs of the same kind in a flourishing condition; yet still, that such impure water is found to be more grateful than clear water, to vegetables of another species.

We once planted two acres of Ruta Baga turnips on a piece of new Kentucky "barrens," of superior quality; the turnips grew well and made a fine crop. The next year the whole field of forty acres was planted with corn; the two acres on which the turnips grew was almost a total failure—the corn throughout the whole season, looked yellow and sickly, while the remainder of the field produced an excellent crop. As we have said before, flax cannot be cultivated to advantage on the same land, only at intervening periods of several years. Yet from chemical tests neither turnips or flax are regarded as very exhausting crops, but the aversion of the same, or certain other crops, to grow immediately on the same soil. arises from these excretory matters deposited by the previous crop.

But more particularly upon the subject of farm crops, we will remark, in conclusion, that, in order to render the system of alternate husbandry more perfect, it is important to embrace the rearing and feeding of farm stock. Cattle convert the bulky products of the farm into meat, butter, cheese, &c. Concentrated products are carried to market at comparatively trifling expense. Cattle also furnish labor, and manufacture into manure the straw, stalks, and other litter of the farm, necessary to keep up its fertility; for our farmers must learn, that, without manure, the soil will grow poor, and its products actually diminish. Manures are the main source of fertility to our soils, and the substantial food ot our crops. Our supply of these will depend on the amount of stock we feed upon the farm, and the amount of stock we can keep profitably, will again depend upon the fertility of the soil, and the consequent abundance of its products. So that grain and grass husbandry and cattle husbandry are reciprocally and highly beneficial to each other.

We regret that this subject is not better understood and more generally appreciated than it is in the West. If this system is thoroughly carried out, it will yield more immediate profits to the farmer, besides adding to the perpetual fertility and value of the soil, as an inheritance to his children.

By taking revenge a man is but even with his enemy—but in passing it over he is superior.

NIGHT-SOILS—VALUE.—A correspondent asks us, "If night-soil is good manure?" We answer, that it is the best manure known, and where it can be obtained, and the proper ingredients are at hand to render it fit for use, no other is required. It contains all the elements that plants want, and in a most progressed form. The food of man embraces every variety of inorganic matter, in the highest proximate condition. It has been urged by some that the amount of sulphureted hydrogen liberated from night-soil was unfriendly to plant growth, but with proper treatment this difficulty is readily obviated.

To plow night-soil into the land without previous preparation, is not only to waste many of its valuable constituents, but from want of division, to bring too much in contact with some of the roots of plants, and thus to deform them. The mere plowing the soil will not give an intimate admixture, so as to secure thorough and perfect division. It should first be made into a poudrette, and this may be brought about in a variety of ways. Where charcoal dust, old charcoal hearts, or the sparks thrown from the spark-catcher of the locomotives, may be procured in sufficient quantities, they could be thrown into privies, and thus form the poudrette before its removal. Where these cannot be procured, night-soil may be made into poudrette in the field, thus: Place muck decomposed by the Lime and Salt Mixture, or tan bark similarly decomposed, or river-mud or woods-earth, other carbonaceous refuse, on the surface of the field, in a strip eight feet wide, six inches deep, and of any required length; drive the cart containing the soil across one end of this strip, letting its contents fall in and mix thoroughly together.—*Working Farmer.*

FERTILIZING PROPERTIES FROM THE AIR.—A quantity of ammonia and nitric acid, equal, perhaps, on an acre, to one hundred pounds of guano, is annually brought down to the soil by the rain, for the benefit of vegetation. Let not, however, the farmer deceive himself, and imagine that he may indulge in idle repose, while nature is thus keeping up the fertility of his lands. But he may profit by this newly discovered bounty of nature, if he will take full advantage of the atmospheric manure by means of drainage, which promotes the equal flow of water through instead of over his soil; by deep cultivation of the land, which brings every part of it in contact with the air. The atmosphere is to the farmer like the sea is to the fishermau—he who spreads his nets the widest will catch the most.

IMPORTANT TO FARMERS.—Of the many methods of preserving fence posts from decay, none is perhaps more simple and cheap than the one of soaking them in blue vitriol. At a recent meeting of the Farmer's Club, in Hudson, N. Y., one of the members exhibited a post which, previous to being placed in the ground, had been soaked in a solution of blue vitriol—one pound of vitriol being used to twenty quarts of water. The post was pine, and when taken up was as sound as when first put down, eight years since. This solution is good for all kinds of timber exposed to the weather—spouts, shingles, stakes, bean poles, &c.

The Farmer and Planter.

COLUMBIA, S. C., JANUARY, 1860.

HINTS FOR THE MONTH.

We have begun a new year. Can we not take a survey of the old one, and learn some profitable lessons for future guidance.

The first three months of last year were very wet. April was a very dry month—and a windy one. The early part of May was wet, and then came a drought of seven or eight long weeks, which told severely upon the corn and cotton crop throughout a large portion of the State.

It is worth while to make a note ☞, that those who had their land well prepared, and kept the *plow* moving regularly, suffered least.

Land repeatedly stirred will always be in a condition to absorb more moisture, and there is no night or day, in the hottest summer, or in the dreariest drought, but there is moisture enough in a Gulf wind to do wonders.

During this month, repair your out-houses and fences, rake up and collect all the manure you can, haul it out upon the fields most convenient, when the ground is dry, and apply it as soon as you can.—There is no work of the plantation which comes more in the way of planting than hauling out and spreading manure. Do it now, if you can; it will be easier done, and will do more good. The bed will be settled down by planting time, and the young plant will grow off like it would in a hot-bed. Keep stables, cow-lots and hog-pens well littered. Have wood hauled to the homestead and the quarters, in abundance; and, whenever the ground is dry enough, keep your team moving in all necessary farm work.

All the sprouting, clearing up of briar patches, fence-corners, &c., should be done as soon as possible. Clean out ditches, ditch banks, drains, and stop gullies. Ditch and drain all ponds and wet spots about the plantation.

Stock—will require especial attention now. They have, heretofore, as is the common custom, "had the run of the fields," and may have kept in pretty good condition. Don't let them lose what they have gained; but be sure that they have salt regularly, water, and plenty of food.

Notice your sows and pigs, and see that they are taken care of. If you have clover or barley lots ready for them they will do well on them, with very little corn.

Look to your sheep; keep them out of the cockleburs—they not only ruin the wool, but injure the sheep. It will take 50 per cent. more food and attention to winter a "burred sheep."

Keep an eye on the dogs; shoot every one of them that crosses your sheep walk without a master, and you will not often be troubled with them.

The young lambs should be cared for—particularly now. Keep the old sows and the mules out of your sheep lots. Salt regularly, and remember that the master's eye is the best sheep physic.

HOGS.

At this season of the year, since our earliest recollection, the Hog has been a "peculiar institution." From whatsoever stand-point you may look at his Hogship, whether as the Kentucky drove-hog, the pea-field or pet house-hog, the fancy Essex or Suffolk, the large Chester County or Lincoln, or in the shape of sausages, yielding their pungent aroma, of ham and eggs, smoking and smelling as ham and eggs only can, of hogs' brains, or hogs' feet, or souse, or savory spare-ribs, or *Lord Bacon*, the Hog fills the public eye.

We have sometimes thought, "*sub rosa*," that the Hog family always turned out in stronger force at this season than any other, and that we had more grunting and wallowing in the mire, and that, "may be," the diet of the season had something to do with it.

But we must beg pardon for straying; we wanted to call the attention of our hog-raisers to the importance of beginning the year with the determination to be less dependant upon others for our bacon. The exhibition of large and small breeds at our late Fair, was excellent; and he must be hard to please who could not make up his mind, that he could make an improvement on the old razor-back or landpike, by crossing with some of the improved breeds, and a small cross of the corn crib. Read the true question in Pork Raising, from the *Southern Rural Gentleman*.

"CITY SEWERAGE."

A very sensible article will be found in our present number, upon "City Sewerage," clipped from that capital paper, the *Valley Farmer*. There are a great many people in the world who are "watching the spigot very closely, while they never see that the bung-hole is open." Millions of dollars are annually paid out for Guano and chemical compounds, (many of them worthless) while the refuse of large cities—the great consumers of agricultural production—is daily accumulating, to create fearful diseases, when it should be converted into agricultural wealth.

We are not only pursuing a suicidal course in an economical, but in a sanitary, point of view. We have no right to pile up masses of putrefaction to

create disease, or to pollute the water courses of the country, by turning our sewers into them: we have no right to waste anything which we can convert into a use and a blessing. Every particle of offensive matter can be deodorized easily and economically, and converted into a manure richer than Guano. Until we learn to make the best of our own resources, we may expect ever to be realizing the fable of "killing the goose for the golden egg."—The fertilizing materials wasted about Columbia, would convert the waste lands about the city into market gardens, yielding thousands per acre. It would bring into life a new and valuable kind of labor, which would add to her wealth, and remove the reproach, that Columbia can boast of the poorest vegetable market in the country.

CHEMICAL FERTILIZERS.

We beg leave to call the attention of our readers to a premonitory article from the pen of Prof. JOHNSON, on Mapes' Super-phosphate of Lime. We have pledged ourselves to protect the Planter, as far as we are able, against all impositions from abroad, or at home. As long as this journal is under our control, we shall speak freely what we believe to be true: it shall never become the propagandist of any humbug, but shall stand on the only platform upon which an Agricultural Journal should, "the Farmer and Planters' Friend."

We invite criticism. If we are wrong, the sooner we are set right the better for us as well as our readers. "Truth lies at the bottom of a well," says an old adage, and it is no easy matter often to get it out. By the way, we owe our thanks to the racy Editor of the Edgefield *Advertiser* for a very appreciative notice of our November No. It was not only well done, but in the right spirit. Such a notice, like charity, blesses twice—him who gives, and him who receives. We are not used to such things; newspapers, generally, seem to think Agricultural Journals great bores, and Agricultural information a very worthless article. We notice that the columns of the *Advertiser* are pretty well phosphated, and advise him to run his eye over our present number *pro bono publico*.

REST AND ROTATION.

A.—"That field of cotton looks badly, Squire C.; bad stand, eh?"

Squire C.—"Yes. I've run it in cotton a little too long. Fact is, I haven't land enough open for my force—must clear more, so that I can seed down and rest some."

"Seed down and rest"—the stereotype phrase of the country! And what is seeding down and rest? Taking a crop of wheat or oats from a soil already exhausted by bad culture, then throwing down the fence, and turning every living thing in the neighborhood upon it, to eat it off and tramp it over until planting time comes round again.

And this is called seeding and rest. There never was a greater fallacy than this notion many people have, of resting land by growing grain crops upon it. Under such a system the lands must deteriorate and production decline. Something else is wanted; more manure and better management. It is time people should begin to think a little more seriously about what they owe to their mother earth.

We commend to the perusal of our readers a very sensible article, in this number, from that capital paper, the *Valley Farmer*. Read it carefully, and "think about it."

"ALL IS NOT GOLD THAT GLITTERS."

In looking over our exchanges, we have met with unmistakable evidence that the venders and manufacturers of chemical fertilizers have settled upon the Southern States as an interesting field for their operations in 1860.

Your patient is sick of a fever; you send for a doctor. Give him warm water and bleed him, says Dr. Sangrado. Be it dropsy, or dyspepsia, jaundice, or asthma, gout, or marasmus—it is all the same to Dr. Sangrado; bleeding and warm water clears out the secretions, equalizes the circulation, and the sick man gets well, through the "vital forces."

Is your land suffering from dropsy? Has it been over-fed and become gouty? Is it dyspeptic, and cannot digest its food? or has it been, by bad usage and excesses, broken down in constitution—*in articulo mortis?* Give it Superphosphate, says the superphosphate man. Peruvian guano is better, says another—you want a stimulant. The Peruvian won't do, says another—you want something more than a stimulant; here is a guano superior to any guano or fertilizer in the world, containing a large per centage of bone phosphate, lime, phosphoric acid, and other animal organic matter. Stop! says another, "farmers and planters, study your interests," and listen to the unparalelled success of Kimberly's cereal Fertilizer! an article which contains ingredients worth $24 23 per ton, but is sold at the low price of $20 per ton. But none or all of these, says another, can be compared to "Mapes' Nitrogenized Superphosphate Lime—an article which has been thoroughly tested by the experience of farmers, and which contains, in every bag, a certificate of its purity.

In the name of common sense, is there to be no limit to the frauds, impositions and humbugs practiced upon the Agriculturist? Will people never learn to run from an ox that has "hay on his horns?" Ought not any man's common sense to teach him, on a moment's reflection, that these fertilizers prove too

much? that the same application will do the same wonders upon a soil exhausted by cotton, or wheat, or oats, rice, tobacco, potatoes, pindars, or grazing? that it makes no difference whether the soil be trap or granitic, slaty or grenitish, bald prairie or alluvian—it is all the same. Does not every man know that, even upon his own plantation, he will find some spots where heaps of manure will hardly make a mark, and others where a mere sprinkling will tell wonderfully?

We entreat our farmers not to be gulled by these chemical resurrectionists. Think for yourselves.—Buy a little, and experiment carefully, before you "go into it." Appearances are deceptive: the best of judges may, at times, be deceived. A fortunate shower, a plat of land peculiarly adapted to the beneficial action of a certain manure, a preceding crop or application of some fertilizer, (till then dormant,) may have produced the changes attributed to this new and wonderful fertilizer. Remember, "one swallow don't make a summer," and "make haste slowly," have always been reckoned wise maxims.

For the Farmer and Planter.

TO THE PATRONS OF THE FARMER AND PLANTER.

I see by the editorial from the publisher of this valuable journal, that it will be continued for another year. This is well; but, in the same notice, the information is given that the publisher cannot continue its publication, after that time, without material aid to enable him to do so. He further states, that he will make no other appeal for its support.

This addresses itself to the people of the State, especially the Agriculturists, who are the producers of the raw material, and should enlist their energies in support of this journal.

The Agricultural Societies in the various Districts of the State augur well for the prosperity of the people, and show that they take a deep interest in the noble pursuit of Agriculture. But all this only shows the importance of having a paper devoted altogether to collecting information on this subject, and there should be a vehicle for the diffusing of that information among the people.

Then there is, also, the State Agricultural Society, which holds a Fair, annually, in Columbia. Ought there not be an organ, in which the Essays, Addresses, and information that are produced, as the results of that Society, should be made public? I submit this to prudent and judicious men, and leave the answer with them.

It would be shameful, if this journal, the *Farmer and Planter*, should be suffered to go down. A large quantity of valuable reading matter is furnished, in proportion to the price of the paper. *It is too cheap.* With type of larger size, and the addition of a few pages more, the price of the journal ought to be *two dollars* per annum.

What say, friends of Agriculture and Horticulture, ye lovers of good fruit and beautiful trees—will you let the paper still languish on with a feeble and sickly existence, and make no effort to restore it to vigorous health? Will you not give to its support that which it needs—*money?* If this paper dies for want of support, distant will be the day before a good Agricultural journal will be again undertaken in this State.

CIVIS.

We thank our friend "Civis" for his kindly call, and hope his remarks will not be lost on the people of our State. Before making the announcement we did in the December number, we consulted with many friends, who have given us tangible evidence of their deep interest in the success of the *Farmer and Planter*, but, whilst they regretted the necessity for such a course, they could but acknowledge there was very little, if any, encouragement for continuing our labors; at the same time prevailed on us to make the trial for another year. We have, therefore, determined to try it for twelve more numbers, so that all who are inclined to sustain an Agricultural journal in South Carolina can have one more—and this will, undoubtedly, be the last—opportunity to make the effort for its continuance. As we before stated, the increase must come before the March number is issued, for we cannot afford to risk the expenses of paper and labor for extra copies of more than the January and February issues, upon the frail *hope* of receiving increased patronage. We have now on our hands about *three hundred dollars' worth of printed copies* of the six first numbers of last year, not worth much more than so many cents.

We are aware the price is too cheap. At the North $1 for such a journal would make it remunerative, because of the greater patronage it would receive, and the expenses of getting out the work would be much less. The great error was committed by Southern publishers of Agricultural journals, at first, in this respect, in adopting Northern prices; and we are glad to see our friend Cloud, of the *Cotton Planter and Soil*, has made the first move in the right direction, by increasing the price of that journal to $2. We do not believe he will lose one hundred subscribers by the movement. On looking over our exchanges, we find but two or three are published at one dollar, and but one of them contain the amount of reading matter that is published in the *Farmer and Planter*, and that is a Southern $1 journal.

We will take the $2 matter under serious consideration, and should we find that our list do not increase sufficiently at $1, we *may* adopt it at the close of this volume.

OF WHAT STUFF OUR REPUTATION ABROAD IS MADE UP.

We direct the attention of our readers to the following extract from a correspondent of the London *Farmers' Magazine*, one of the leading Agricultural journals of Great Britain. It will serve to prove how we have earned our reputation for ignorance and want of enterprise. It is true that the writer has not meted out full justice to the South; there is an Agricultural journal in North Carolina, in South Carolina, in Tennessee, in Mississippi. But it is a painful truth, which we cannot shut our eyes to, that they are not appreciated. In not one of those States are they patronized by a tenth of their rural population. South Carolina can boast of her 30,000 farms, and every Agricultural journal that has been started in thirty years, has died for want of support, except the *Farmer and Planter*. It has lived by sufferance, or, we should rather say, by the kindness and liberality of friends who have contributed, gratuitously, their money and their intellect to its support:

"I have been to some trouble to obtain a correct estimate of the number and estimated circulation of our agricultural papers, and give the result below.—It is almost unnecessary to divide them into those published in the slave and free States, for the proportion of the former is infinitely small; but, perhaps, in that way you will get a correct idea of the comparative enterprise of the cultivation of the two sections. The account stands thus:

FREE STATES.			SLAVE STATES.		
	No.	Circulation		No.	Circulation
Maine	1	5,000	Kentucky	2	11,000
Massachusetts	4	44,750	Maryland	1	8,500
Connecticut	1	5,000	Georgia	1	8,000
New York	8	131,050	Virginia	1	3,000
Ohio	2	18,000	Alabama	1	1,750
Illinois	2	12,000			
Michigan	1	5,000			
Wisconsin	1	9,800			
Iowa	1	3,000			
	21	233,600		6	32,250

Besides these, a few have been commenced within a few months past; but their circulation—even their existence, is too problematical to be taken into account. It is quite possible that this estimate may be incorrect, but if so, it will, I think, err in making the number of copies less, rather than more, than the mark. It should be observed that the papers published in New York and other northern and eastern States circulate largely throughout the east and west, and to some slight extent at the south; but you cannot fail to observe the extremely small support given to agricultural papers by the planters of the Southern States; a circumstance to be, in part, explained by the statistics of public education, as set forth in the last Federal Census. That Virginia, for the settlement of whose domain Raleigh labored so long and so earnestly, and which was once the queen of all the sisters of the confederacy, should with 75,000 illiterate inhabitants, and but 3,000 copies of her agricultural paper in circulation, be reduced to the very verge of sterility and decay, will surprise no one who has studied the inevitable consequences of cultivation by slave labor.

For the Farmer and Planter.

MONTGOMERY, ALA., Nov. 19th, 1859.

MR. EDITOR—*Dear Sir:* The attention of the writer was directed, while in Columbia, during your State Fair, to an article by "Hygeia," in November number of your journal, in reference to "Pyritic oil of Vitriol," which is used in Ireland for the manufacture of super-phosphate. At the close of same the author suggested for planters to demand what kind of sulphuric acid is used in this country in the same manufacture.

Press of business caused the overlooking of same, while at Columbia, but hasten reply from this point.

As Rhodes' Super-phosphate is getting into general use throughout the planting section, we have great pleasure in stating: the sulphuric acid which is used in its manufacture, is produced from *native sulphur*, imported from Sicily, *and none but the very best quality is used.*

As the tests for arsenic are very simple, we freely consent to the testing of Rhodes' Super-phosphate, and have no fear of the result.

We may, at some future time, notice the article in question more at length, and, in the meantime, remain, Very respectfully,

B. M. RHODES & Co.,
Baltimore, Md.

For the Farmer and Planter.

MR. EDITOR:—Your correspondent, "B," in the November number, alludes to an article signed "Aiken," on the Formation of Dew, published in the October issue for 1858, of the *Farmer and Planter*, and questions the correctness of some of the expressions used.

The laws which govern the distribution of aqueous vapor in the atmosphere have been very thoroughly investigated, and are well known to those who have made them a study. When, however, we come to explain certain phenomena which depend upon those laws for their elucidation, such as the use of fogs, the formation of clouds and of dew, of hoar frosts, &c., there are so many disturbing causes which enter into our calculations, that, except to a professed meteorologist, it is no easy task to frame an explanation, in a few words, which will be perfectly satisfactory, and meet all the requirements of scientific exactness.

As science is engaged in the investigation of truth,

those who speak in her name must have this object, and no other, in view. Mere controversy is out of place. To be elated by victory, or chagrined by defeat, are motives unworthy of the cause in which they are engaged.

From the tenor of "B's" remarks, we judge such to be the spirit in which they are offered; and we very cheerfully avow our readiness to receive any correction of error into which we may have fallen.

The sentence to which exception is taken by "B." is these words: "During the day, the earth, receiving more heat from the sun than is lost by radiation, becomes warmer—the surrounding atmosphere receives a large portion of this heat, and is thus enabled to *take up more vapor*. It has its *capacity for holding* invisible vapor increased."

On this "B." makes the following comments:

"From this quotation it would seem that "Aiken" is not aware of the fact that the "deductions of science" have long since discarded all faith in the atmosphere being able to "take up" vapor at all, or in its having any "capacity for holding" it whatever.

This error, we regret to say, is not peculiar to this particular correspondent, but is common to three-fourths of the agricultural writers of the day. They do not seem to know that, so far from the atmosphere *taking up* vapor it rather *holds it down*, for vapor will rise much faster in a vacuum than when the air is present. And as to its *capacity for holding* vapor, the laws of gaseous diffusion show that all gasses mix on a perfect equality, and neither *holds* the other.

A vacuum will hold, when saturated, as much invisible vapor, and no more and no less, than that same space will, when it is previously filled with atmospheric air. The presence of air does not effect the quantity of vapor any given space will contain."

This statement of "B." is correct, as far as it goes. Dalton's and Regnault's experiments, on the elastic force of aqueous vapor, in a Torricellian vacuum, prove that "the presence of air does not affect the quantity of vapor any given space will contain," and that "vapor will rise much faster in a vacuum than when air is present," owing to the mechanical obstruction which the air offers to the rapid diffusion of the vapor. It is in this sense, we presume, that "B." speaks of the air as "holding it down." But these experiments prove further, that with every increase of temperature, the elastic force of the vapor is increased, because, 1st. Vapor obeys the same laws of expansion under heat that air does; and 2d. Because an additional quantity of water is converted into vapor by each increase of temperature. "Hence, the higher the temperature, or the more freely the evaporating surface is supplied with heat, the greater will be the amount of vapor in a given time."

Thus, in warm weather, the absolute quantity of vapor in the air is much greater than in cold weather. Heat is the producing cause—the solvent which converts the water into vapor and renders it invisible. As long as this solvent is present in sufficient quantity, the vapor is invisible. When withdrawn by any cause, the vapor, held in solution by that amount of heat, returns to the state of water. If in contact with the sides of an iced vessel, or in contact with the cold earth, the effect is the same—the vapor is converted into water or dew.

If we vary the phraseology of the sentence above excepted to, and make it read thus: "During the day, the earth receiving more heat from the sun than is lost by radiation, becomes warmer; the surrounding atmosphere receives a large portion of this heat, *evaporation goes on more rapidly, and more vapor is taken up (or diffused) into the atmosphere*," surely "B." will not object to it as fully and essentially correct.

Again, if at a certain temperature of the air, the vapor remains in gaseous diffusion as invisible, and, on the reduction of temperature, a portion of this vapor is precipitated, in the form of water, either as dew on grass, or as moisture on the outside of vessels, may it not be truly said of the air, that, on losing heat, its capacity for holding aqueous vapor, in an invisible state, has been reduced, and on every increase of temperature, its capacity is increased?

We know it is not the atmosphere itself, but the heat in the atmosphere that produces this effect, but nevertheless its capacity is increased or diminished in proportion to its temperature.

Whilst professing an entire willingness to be corrected, if we are in error, and cheerfully to stand corrected, we really cannot see that there is any occasion of stricture on this mode of expression.

AIKEN.

For the Farmer and Planter.

THE HORSE AND ITS USES.

The Horse Department, at the late State Fair, was the admiration of everybody. Did you ever see as many fine and beautiful animals? was a common question. We are willing to admit that the display of fine animals was very good; but the animals were, in the main, too fine for the good of the country.

There were, on exhibition, 176 horses, out of this number, we had, of—

Heavy draft,	10	
Light "	38	
Blood,	23	
Morgan,	5	
Canadians,	2	
S. C. raised Matched Horses,	4	pair.
Matched horses, not S. C. raised,	12	"
S. C. raised Single Harness,	5	
Single harness, not S. C. raised,	14	
S. C. raised Saddle Horses, not worthy a Premium,	2	
Saddle horses, not S. C. raised,	8	

It is very palpable, from their exhibit, that we do not raise our coach horses, single harness or saddle horses at home.

Can we do it? Have we not the best of material to begin with upon our blood mares breeding always from stallions that make their mark, and produce either good harness or saddle horses. We have the game, we have the action, and we have size enough —all we want is system. Good common sense ought to teach us that we never can attain our object by breeding to a horse merely because he is imported or celebrated as a racer, or distinguished for a long line of ancestry on the turf.

But there is another defect, made apparent by the above exhibit, of still greater importance: In an Agricultural State, at a State Fair, to have, on exhibition, only 10 heavy draft horses, of these, not a stallion over two years old, and, really, not two out of the whole lot deserving to be ranked as heavy draft animals. There was not a South Carolina raised heavy draft gelding on exhibition deserving a Premium, and not a farm horse team, of four horses or mules, entered for exhibition.

This speaks badly for an Agricultural people, when horses command such enormous prices, as they do now-a-days, too.

Can we do no better? Have we not been going all wrong?—breeding our largest and best mares to jacks, when they should have been bred to horses remarkable for getting good movers—good saddle or harness horses. If you want size—stamina, you must go to the mare for it; never breed a large horse to a small mare, if you want to improve. You may breed your small mares to jacks profitably enough—medium-sized mules are generally the best; but the best mare, large or small, should always be bred to a good horse. Let the Kentuckians and Tennesseans breed mules, if they want to; as sure as the sun shines, it is bad policy for a Carolinian to do it. Let us think it over, and try to do better.

OLD WHIP.

From the Hartford Homestead.

CONNECTICUT STATE AGRICULTURAL SOCIETY.

REPORT OF PROF. S. W. JOHNSON, CHEMIST TO THE SOCIETY, ON MAPES' SUPERPHOSPHATES OF LIME.

HENRY A. DYER, Esq., Cor. Sec.—

Dear Sir:—Of all the many fraudulent and poor manures which have been, from time to time, imposed upon our farmers during the last four years, there is none so deserving of complete exposure and sharp rebuke, as that series of trashy mixtures known as "Mapes' Superphosphates of Lime."

It is, indeed, true that worse manures have been offered for sale in this State; but none have ever had employed such an amount of persistent bragging and humbuggery to bolster them up, as has been enjoyed by these.

Seven or eight years ago, "Mapes' Improved Superphosphate" was almost the only manure of the kind on sale in our northern markets. Then it was of good quality, and contained soluble phosphoric acid 10.65 per cent.; insoluble phosphoric acid 10.17 per cent; ammonia (actual and potential) 2.78 per cent., and had a value (calculated on present prices,) of $44 per ton. It was sold at $50 per ton. This manure was the prototype of the following formidable series, viz: Mapes' nitrogenized superphosphate of lime, $4 per bag, $50 per ton; Mapes' No. 1 superphosphate of lime, $3.60 per bag, $45 per ton; Mapes' superphosphate of lime, $3.20 per bag, $40 per ton; Mapes' cotton and tobacco superphosphate of lime, $3.20 per bag, $40 per ton; Mapes' potash superphosphates of lime, $2.80 per bag, $35 per ton.

I now communicate analyses of four samples, made the present year, and it will be seen that no improvement has taken place:

Analysis of Four Samples Mapes' Superphosphates, taken by Mason C. Weld, from the Stock of Hartford, Conn.

INGREDIENTS.	"Mapes' Cotton and Tobacco Superphosphate of lime." From 160 pound bag.		"Mapes' No. 1 Superphosphate of lime." Taken from 160 pound bag.		"Mapes' Nitrogenized Superphosphate of Lime." Taken from 160 lb bag.		"Mapes' Nitrogenized Superphosphate lime." Taken from one lb sample can.	
Moisture expelled at boiling heat,	13.42	13.62	18.70	18.87	20.55	20.75	14.37	14.32
Matters expelled at red heat,	17.50	17.38	25.35	25.15	19.80	19.72	23.87	24.02
Sand and insoluble matter,	17.85	18.10	13.60	13.70	12.17	12.50	12.67	12.57
Lime,	23.48	23.84	17.91	18.07	16.63	16.18	19.41	19.39
Insoluble phosphoric acid,	8.15	8.15	8.05	8.03	8.10	8.13	10.47	10.65
Soluble do. do.,	trace.		trace.		none.		.57	.68
Potash,								
Iron, sulph. and carb'c acids, etc., not determ'd.	19.60	18.21	16.39	16.18	22.75	22.72	18.64	18.37
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Potential ammonia,	1.67	1.70	1.90	1.87	2.14	2.11	3.94	3.98
Calculated value, (per 2000 lbs.)	$12.10		$2.50		$13.18		$22.24	
Price, (per 2000 lbs.,)	40.00		45.00		50.00		50.00	

The agents of Mapes' superphosphates are furnished not only with the article in bulk or in bags of 160 pounds each, but, also, with one pound samples

put up in cans, which they are instructed to furnish gratuitously to any who are desirous of trying the manure.

It was, of course, interesting to learn how closely these trial samples correspond with the material which purchasers receive, and in case of the "nitrogenized superphosphate," both classes of samples have been examined. The result is highly instructive, and shows that a small specimen of one pound in a can, worth at the rate of $22 per ton, is to make the farmer swallow the 160 pound bags, the contents of which have the extraordinary value of $13 per ton.

Another remarkable feature to be noticed in the above analyses is, that the three specimens taken from 160 pound bags, and bearing different names, are, so far as their valuable ingredients are concerned, the same thing. The "cotton and tobacco," the "No. 1," and the "nitrogenized," letting the cans alone, are equally good, or, I should rather say, equally bad!

Another point to notice is, that these mixtures, the calculated value of which is from one-quarter to one-third of what is demanded for them, are now sold under the analyses and recommendations that were procured years ago, on what was really, at that time, the best superphosphate in the country.

The inventor of these fertilizers, Prof. J. J. Mapes, is also the inventor of a new doctrine, dating back only a few years, to the effect that there is a progressive increase in the value of the ingredients of a fertilizer, in proportion to the number of times it becomes a part of animal or plant, and that, therefore, a mineral phosphate, for example, is comparatively worthless as a manure, considered beside a phosphate that is derived from the bones of an animal.

We have only to carry out this principle far enough to show its utter absurdity, for, by a vastly great number of "progressions" the point will be finally arrived at, when a grain of "progressed" phosphate shall equal a ton of Sombrero guano, or other mineral phosphate. The only use that this vagary of the "progression of ultimates," or "progression of primaries," can serve, appears to be, to account for the great value of Mapes' superphosphates! Are we to believe that a few *per cent.* of really valuable fertilizing matters they contain is so far *progressed* as to be worth three or four times as much as the same ingredients of other manures? Are the insoluble phosphates of these manures as good, and hence deserving as good a name as what are ordinarily known as soluble or real superphosphates? Do the materials, (*primaries, ultimates,*) out of which these manures are made, "progress" with such rapidity that a manure which, in 1852, contained twenty-one per cent. of phosphoric acid, could produce an equal effect, in 1857, though containing but thirteen per cent., and in 1859 only requires to contain eight per cent.?—Absurd as the doctrine of progression of ultimates in the abstract is, its logical applications are, if possible, more so, and will not find currency in Connecticut, we may be sure.

Making Sausages.—Forty pounds of meat, one pound of salt, three oz. pepper, half pint of sage, pulverized. Some add a little summer savory.

Cream Cookies.—One cup of sugar, 1 of thick sour milk, 1 teacup saleratus; mix very soft, and bake in a quick oven.

The Apiary.

"In the nice bee what sense so subtly true,
From poisonous herbs extracts the healing dew."

From the Ohio Cultivator.

ITALIAN BEES.

We learn, from Richard Colvin, that he has lately received from Europe, several swarms of Italian bees. It seems that "blood will tell," as well in bees as in other live stock, and we are glad to learn that Colvin is determined to have the best breed as well as the best hive. The following history of the Italian bee is from a letter, written by Samuel Wagner, of Pennsylvania, to Rev. L. L. Langstroth:

The first account we have of the Italian bees, as a distinct race, or variety, is that given by Capt. Baldenstein, in the Bienenzetung, No. 4, 1848. Being stationed in Italy, during part of the Napoleonic wars, he noticed that the bees, in the Lombardo-Venitian district of Valtelin, and on the borders of Lake Como, differed in color from the common kind, and seemed to be more industrious. At the close of the war, he retired from the army, and returned to his ancestral castle on the Rhœtian Alps, in Switzerland; and, to occupy his leisure, had recourse to bee-culture, which had been his favorite hobby in earlier years. While studying the natural history, habits and instincts of these insects, he remembered what he had observed in Italy, and resolved to procure a colony from that country. Accordingly he sent two men thither, who purchased one, and carried it over the mountain to his residence, in September, 1843. About the same time he became a subscriber to, and correspondent of, the *Bienenzeitung*, and speedily took a lively interest in the discussions then carried on in that journal, respecting the impregnation of the queen, the sex and design of the drones, the age to which the queen and the workers respectively attain, etc., etc. This induced him to communicate to the *Bienenzeitung* his observations on the Italian bees, with some suggestions as to the manner in which they might be employed to determine some of the points in dispute. His communication did not, at the time, attract the attention that it deserved, though it led Dzierzon to inquire whether the cells and combs built by the Italian bees differed, in any respect, from those constructed by the common kind. Baldenstein replied that there was no perceptible difference; that he had frequently interchanged the combs, and never noticed that it caused any difference in either case, the cells of both being apparently of the same diameter and depth.

The controversy, concerning the above-mentioned points, continued to be waged with unabated ardor, and the ablest Apiarians of Germany engaged in it, pro or con, without arriving at any satisfactory results; at least, not any in which all felt willing to concur. In this state of affairs, Baldenstein sent another communication to the *Bienenzeitung*, (No. 11, 1851,) in which he adverts to his previous article, and expresses the opinion that no mode of determining those important questions could be so practicable and reliable as the employment of the Italian bee for that purpose. He then states that for seven years he had possessed one colony, and only one, of the genuine Italian stock, which had, with great

difficulty, or rather, by fortunate chance, been preserved pure among a large number of bastard and common colonies. In all that time, he had not, despite of every precaution he could use, succeeded in keeping his young Italian queens from *mes-alliance* with common drones, and consequently producing a bastard progeny.

His Italian colony retained, till May, 1847, the old queen which had been imported from Italy. She was then at least four years old, and had never failed to produce genuine Italian brood. In May, 1847, the colony began to show signs of weakness, but suddenly recovered in the following month; and it was evident that it had supplied itself with a new queen, which had, fortunately, been impregnated by an Italian drone, as she produced genuine or pure brood. On the 15th of May, 1848, this queen issued with a swarm, and he hoped that, as he had placed the parent hive in a rather isolated location, her successor would be impregnated by an Italian drone. But, in this, he was doomed to disappointment; she produced a bastard progeny, while the emigrant qeen produced genuine brood, as before. Similar disappointments awaited him from year to year, till the date of his second communication, (June, 1851,) when he possessed, still, only one colony of the pure stock.

Among the points which he considered as definitely established by his observations on the Italian bee, are the following:

1. The queen, if healthy, retains her proper fertility at least three or four years.

2. The Italian bee is more industrious, and the queen more prolific than the common kind; because, in a most unfavorable year, when other colonies produced few swarms, and little honey, his Italian colony produced three swarms, which filled their hives respectively with comb, and, together with the parent-stock, laid up ample stores for winter; the latter yielding, besides, a top box well filled with honey. The three young colonies were among the best in his Apiary.

3. The workers do not, at most, live longer than one year; for, though the bees and brood, in the parent hive, when the first swarm and old queen left, were of the Italian stock, exclusively, few of this kind remained in the Fall, and none survived the Winter.

4. The young queen is impregnated soon after she is established in a colony, and continues fertile during life. Were this not so, the genuine queens would not have continued to produce pure brood during those seven successive years.

5. The queen leaves the hive to meet the drones. If not, it would scarcely have happened that all the young queens bred in those seven years, with only one exception, were impregnated by common drones, and produced bastard progeny.

6. The old queen regularly leaves with the first swarm, or the genuine Italian brood would not invariably have been the product of the swarm, but, occasionally, at least, of the parent-colony, which never happened in all that time.

These observations and inferences impelled Dzierzon to make an effort to procure the Italian bee; and, by the aid of the Austrian Agricultural Society, at Vienna, he succeeded in obtaining a colony from Mira, near Venice. Meanwhile, we have no further account of them in the *Bienenzeitung*, excepting that, in No. 1, 1853, Baldenstein, in reply to an inquiry from Dzierzon, stated that—"the Italian bee is found immediately beyond the Alps, in the southern valleys of the Grisons, bordering on Italy, in Merox, in Pregell, in Prochiavo, and then in the entire Lombardo-Venitian district of Valtelin, in the district of Chiavenna, and on the borders of Lake Como." He does not doubt that it occurs, also, in other parts of Italy, but names those as places where he observed it himself, and is certain it may be found.

Dzierzon obtained his Italian colony Feb. 19, 1853, and, on the following day, transferred the combs and bees into one of his own hives on a stand in his Apiary, and screwed it fast, lest it be stolen. He never moved it during the ensuing summer; but took from it combs with worker and drone brood, at regular intervals, supplying their place with empty comb. In this way he succeeded in rearing nearly fifty young queens, about one-half of which were impregnated by Italian drones, and produced genuine brood. The other half produced a bastard progeny. He continued thus to multiply queens by the removal of brood, till several of his artificial colonies suddenly killed off their drones, and the original stock did so likewise on the 25th June. The bees of the original colony still labored very assiduously, but gradually came less diligent, till, when the buckwheat came into blossom, it was surpassed in industry by many colonies of the common bees. But, as young bees continued to make their appearance, he felt satisfied that the colony was in a healthy condition. Later in the season, he unfastened the hive, preparatory to putting it in winter quarters, and, on attempting to lift it, found he was scarcely able to move it. He now discovered why it had so greatly fallen behind the other colonies in industry. Having early rid itself of drones, (as probably is done instinctively in Italy,) it had, in consequence of its extraordinary activity, filled all the cells with honey in a very short time, and was thenceforward doomed to involuntary idleness. It had attained a weight which scarcely any of his colonies reached in the summer of 1846, when pasturage was so superabundant; whereas, the summer of 1853 was certainly a very ordinary one in this respect.

Baulky Horses.—A writer in the *Cotton Planter*, gives the readers of that journal his method of obtaining a pull out of an obstinate horse, and also claims to be the originator of the plan. He says:

Take a small rope, (a plow-line for example,) double it, make a loop of the double end, and draw it snugly around the under jaw of the animal, just behind his front teeth, with the loop underneath.—Throw the loose end over your shoulder, and "walk in the way he should go," holding fast, and pulling steadily and firmly. Don't be troubled about him, for he will follow without fail, after he has discovered how you have "got him." This will also compel an animal to stand quiet to receive the bridle or collar.

Nature has strange ways of doing the most beautiful things. Out of the cozy earth, the mud and rain of early spring, come the most delicate flowers, their white leaves borne out of the dirt, as unsoiled and pure as if they had bloomed in the garden of paradise.

When the curious or impertinent would pick the lock of the heart, put the key of reserve in the inside.

Horticultural and Pomological.

WILLIAM SUMMER, EDITOR.

MONTHLY TALK WITH OUR READERS.

A new year dawns upon us, and as we have turned over in our mind in what way best to hold converse with our readers, it occurs to us that a familiar monthly talk will best suit our purpose. We shall have much to say, and sometimes, as we live in the various capacity of farmer, planter, and horticulturist, we may, apparently for the time, intrude upon our worthy coadjutor's domain. We will, perhaps, serve you up rather a salmagundi dish, but we will endeavor to be plain and practicable.

The bright days of this month will require and call you to your gardening operations. See to it that the ground is properly manured, and well trenched, for without this you cannot hope to succeed. The drafts upon the soil are heavy, and vegetables, to be good, must merely be grown quick.—Get good seeds—purchase from reliable seedsmen, who will furnish good seeds. *Peas* must be sown.—*Lettuce*, *Spinach*, and a few *Early York Cabbages* may be sown, where they can be protected.

The garden, where all kinds of vegetables are grown for the table, is of the first consideration in every well regulated household, and constitutes, when properly managed, the prime luxuries of life. The culinary department should be portioned off, and kept separate from the ornamental. Where the two are attempted within the same enclosure an evergreen hedge may divide them, and the labor of cultivation of the former is lessened very much by the use of the plow—the fork serving to keep the ornamental grounds in good tilth. Deep cultivation and manure, with proper cultivation, will give you good vegetables. Artificial manures, such as guano and super-phosphate, will be of great value in aiding you should your soil be wanting in the necessary ingredients.

Such vegetables as are wanted for early use may be brought forward a month earlier, by being sown in a hot-bed, and planted in the open ground when the weather becomes mild, and the soil prepared for vegetation. Peppers, tomatoes, cucumbers and melons, are the kinds which receive most advantage from artificial heat. To make a convenient hot-bed for a family garden, select a warm dry place, near the south side of a building or garden fence; make a frame from three to five feet wide, and extending it east and west, as long as is required, but so constructed as to slope to the south about fifteen degrees from a level—this frame cover with glazed sashes. Within the frame put a quantity of unfermented horse manure, with one-third short straw or leaves. Mix the whole by turning it over—spread it even over the whole bed, keeping it inclined to the south, as directed. The depth of manure should be from two to three feet, according to the season and heat required. Then put on a layer of well rotten manure, three inches thick; cover the whole with the sash. When the heat begins to rise, cover the surface of the manure with good garden mould, about 8 inches deep. As soon as the earth gets warm, and of the proper temperature, stir the top of the bed thoroughly over, and rake fine, reserving enough of the fine earth to cover the seeds. Make drills across the bed, four inches apart, and a half inch deep. Sow the seed, and sift the fine mould over, and press with the back of the spade. Put on the sashes and cover with a mat, when exposed to frost. The bed will now require close attention to keep the temperature. If too hot raise the covering to admit air, or make holes in the bed with a sharpened stake. When the plants are up, give them water frequently, and air, when the weather is mild, to harden them. After the plants have attained sufficient size, and the weather is favorable, they may be transplanted into the open ground.

Dress up your *Asparagus* beds, and prepare to plant new ones. Make the ground rich and deep, covering the surface with salt—fork this up about four inches. Look to the *Strawberry beds*, and fork them up neatly, giving a good dressing of phosphate of lime, woods-earth and ashes, or fine bone-dust—make new beds. No fruit is so certain and gives such a quick return as the strawberry. Plant only the best varieties: *Wilson's Albany*, *Longworth*, *McAvoy's Superior and Hovey*, are among the very best. *Raspberries* should be planted this month, the finer kinds, as they will commence suckering, and are not removed so effectually late in the Spring. They require deep, rich, and rather shaded, moist, soil. A few of the best should be grown, as a location can be found suitable for them. The hardy native, black and yellow cap varieties will succeed when the others often fail, but give them a trial, as they are a superior fruit when well grown.

Have you planted grape-vines? If not do not neglect it any longer; nothing will give you so quick a return. If you have vines, prune by all means this month, as it is not safe after the first week in February. In another article we give directions for planting as well as pruning. This last is not generally so well understood.

Look to the orchard, and prune out all straggling and decayed limbs. Shorten in your peach trees—clean away about the roots all insects; examine the bark, and see that all is right. Commence the year

with having at least a prospect of fruit for your children. A friend once said to us, that he was determined his children should never have a desire to pilfer the fruit of his neighbor, for he intended they should have better fruit to eat than his neighbors.—This is the right spirit. He was not bit by the tree-pedlar, and we hope not many of our readers have been. He said he would deal with a responsible nursery at home, and he could look forward with bright prospects to the future. The Apple thrives and soon produces fruit, and we have now from the early May to the best Southern seedling winter varieties, keeping until May—varieties adapted to the climate. So too with the Pear. The old Herefordshire distich,

"He that plants pears
Plants for his heirs,"

has proven untrue in our day, as the pear on the Angers quince soon produces fruit, and every one may expect to enjoy this delicious and wholesome fruit. Encourage your children to have a care and love for fruit-trees—they will grow up to be wiser and more useful men. Give them the pruning knife, and teach them how to use it, instead of lounging about, whitling soft boards, and puffing villainous segars. Let them work in the garden—they will soon delight in it; furnish them with suitable implements, and it will soon be a pleasure to them.—Decorate your homes with flowering shrubs, roses and evergreens. Prepare places suitable to receive them. The winter with its gloom should remind you that there is something wanted to cheer the mind.—Those who love and appreciate the beautiful, make these their study, and the communings of the mind opens new stores of pleasure and instruction, and we become not merely dwellers on earth's surface, but wiser and better, living as we do with all the beauties of God and of Nature for our neighbors.

Have you a loved one resting in mother earth?—Do not leave the last resting place any longer a neglected spot, but plant some beautiful evergreens and a few roses, to entice the birds to sing in sweetness and enliven the sacred spot. Make home pleasant, by surrounding it with comforts and blessings within your reach.

Our worthy publisher asks for help. Give us thousands of readers, and we will feel encouraged to do all we can to aid you, with our humble efforts, in a good cause.

Those who have promised us contributions, we hope will not be unmindful of our wants.

With the kindly greetings of the New Year, we commence our labors, and trust much may be done with your aid to improve the rural taste of our State.

☞ Horticultural Exchanges should be directed to Pomaria P. O., South Carolina.

THE GRAPE---CULTURE AND PRUNING.

No fruit is so delicious, so agreeable to all tastes, and applicable to so many purposes. Its rapid growth, great fertility, abundant fruit, which, in a few years after planting, always produces, makes the cultivation of the vine a matter of great interest, and all should enjoy its blessings, when it can be obtained at so little expense and trouble, and with such a quick return. The many steep hill-sides and uplands, not well adapted to the culture of cotton or grain crops, and, at present, in a state of neglect, or in forest, may, with a little labor, be made as productive as the richest cotton lands, if planted in vineyards. Plant along your fences, and you will gather delicious fruit for the table, or be enabled to make a wholesome and excellent wine, which will keep and improve with age, giving a good return for your labor. Don't be afraid that the trial will be a failure, and think your time and money thrown away, for where the vine, in a state of nature, flourishes and produces such an abundance of fruit, the improved varieties will succeed much better by cultivation.

The grape of America is distinct from the European varieties, and they will never succeed in our climate, in the open air. The native grape has these accidental seedlings furnished, as with several excellent varieties, and now that attention is given in the right direction, many new varieties are being brought into notice.

The object of this article is, to give a few hints on the *soil*, the *cultivation* and *pruning*, with a short description of the principal native grapes.

The soil should be well drained; a sandy, turfy loam, on a rocky or sandy bottom, is the best, and in such localities the grape seldom rots, but the vine grows and thrives in any soil with proper preparation, except in a cool, wet, stiff clay. Before planting, the soil should be thoroughly trenched to the depth of 16 or 18 inches. This may be effected with the subsoil and a good turning plow. Select a site open and exposed to the sun, where the fruit can be properly matured, and when properly pruned and manured, the grapes will not be so liable to mildew. The best period for planting in this climate is February, or until the 10th of March. Open the holes in the trenched land 18 inches deep and 5 feet in diameter, and in the bottom of this fill in with good vegetable mould, ashes and bone-dust, where it can be obtained; plant the vines with a mixture of this soil, and they will succeed and grow off finely. The proper distance to plant is 12 feet by 9 feet. Put in at the same time a good post to each vine, 8 to 10 feet high, to form the trellis—this will save labor—and we think we can show clearly that the short system of pruning, usually adopted, is one of the principal causes of rot or mildew. The Herbemont, Ma-

deira, Isabella, Lenoir and Catawba are rapid and strong growers—the three first particularly. All observers will at once perceive that vines which happen to run upon trees, and obtain height and distance, are comparatively exempt from rot. It is not so much the height as the extent to which the sap has to circulate through the vine, that prevents rot. The sap in closely pruned vines is necessarily crude and impure, but when trained and pruned properly, upon a trellis, which should be made of wires or laths, nailed against these posts, and the vine trained fan-like, and extended along this trellis, it becomes purified in its extended circulation, and is less liable to rot or mildew.

The hardy, native grapes require annually a proper and judicious pruning; this must be before the sap rises, and at all events by the 1st of February. The system of pruning and training the vine is easily done. The first years' growth of the young vine, must be cut down to 3 eyes. These eyes or buds will grow fine, vigorous shoots, the second year; tie them to the posts, and let them grow upright; the second year train fan-like, against the trellis which we prefer, and cut back the shoots to 4 or 5 feet from the root. The third year on the trellis, the shoots are permitted to grow 12 or 15 inches apart, and these are, the next Winter, also shortened, by cutting back to 3 eyes. If trained only to posts, the horizontal shoots should be shortened in the same manner.

The vine is now ready for bearing, and a set of young shoots will spring out of the last year's growth, each of which will form at least two bunches of grapes. This should be the first crop. The vine is now in the right trim. Every winter the new lateral shoots should be cut back to 2 and 3 eyes, from which grow the new fruit shoots. If by this treatment the vine continues bearing for a number of years, say 10 or 12, you will find the fruit will begin to lose its fine flavor. You must then renew the vines, which is easily done, by cutting down the vine near the root; new shoots will spring up; select the best and train in the same manner as at first, and in this way they may be renewed many times, and the vine will flourish for a century. The judicious pruner will, of course, during the time, cut out as much of the old wood as possible, and renew with some of the thrifty year's shoots.

OUR BOOK TABLE.

The American Farmer's New Hand Book.—The publisher, Mr. Charles Desilver, of Philadelphia, has kindly sent us a new contribution to our rural literature, prepared by J. W. O'Neill.

The work contains well digested instructions regarding the treatment of soils, the operations of productive field husbandry, the planting and cultivation of the different kinds of roots, grains, grasses, &c., kitchen gardening, dairy practice, fruit growing, vineyards and the vintage, the management and diseases of cattle—in short, a universal hand-book for the tiller of the soil. We welcome these additions to our publications, as they impart information which is within the reach of those who cannot afford the purchase of the expensive Rural Cyclopedias. The book is prepared with great industry, and will impart much useful information to its readers. It is copiously illustrated with numerous wood cuts in the various departments, and is sold at $2 a copy. The chapter on Noxious Insects and Animals will more than repay the purchaser for the outlay.

The Gardener's Monthly and Horticultural Advertiser, edited by Thomas Meehan, Philadelphia, at $1 a year.

This excellent monthly has been regularly received during the past year. It is a large quarto of 16 pages, devoted to Horticulture, Arboriculture, Botany, and Rural affairs. It is filled with practical editorials and communications, American and foreign, posting up the gardener in his duty, telling him how to cultivate vegetables and flowers, the management of the green-house, and all other matters connected with rural taste.

A new volume commences with the year, and we endorse it by saying that it is one of our most welcome exchanges.

POMARIA NURSERIES.

An unavoidable delay in the printing, has prevented the issue of our Annual Catalogue until the present. In order to reach our patrons with as little delay as possible, we send a copy attached to this issue of the *Farmer and Planter*. We ask the friends of the South, and of home enterprise, to examine it, and would be pleased to furnish all who apply with Fruit-trees, Evergreens, Roses, and Ornamental Shrubs, grown in the South, and adapted to our soil and climate.

This month and the next will be the best time for successful planting.

For the Farmer and Planter.

FRUIT CULTURE---SEEDLING VARIETIES ADAPTED TO OUR CLIMATE.

BY DR. A. P. WYLIE, OF CHESTER, S. C.

The science of Pomology has made more rapid advances within the last fifty, but more particularly within the last twenty-five years, than any kindred science. It is most astonishing the vast number of new and valuable varieties that have been collected and originated by Pomologists within that period. The greater part of the older varieties, especially of the Pear, which were in cultivation during the last century, some of which we find growing in our old orchards, are now considered unworthy of cultivation.

Unfortunately for us, this science has made comparatively but little progress in the South; more particularly in South Carolina. With a few exceptions, we have not as good fruit now, in this State, as had our ancestors, owing to the fact that they generally planted their trees on fresh land, whilst most of our people plant on old worn-out soil—after preparing holes for the reception of trees, as if they were about to plant a fence post, leaving them to the mercy of worms, and frequently of cattle—and then most unjustly blaming the nurseryman, soil or climate, for their want of success.

One of the main sources of failure with the few persons who have treated their trees properly, has been in cultivating varieties not adapted to our climate; more especially of the apple, pear and grape. Until very recently our trees were mostly purchased from Northern nurseries, of varieties which had been chiefly originated in the North, and, consequently, most of them only adapted to that climate. A person, who happened to have a taste for horticulture, generally, procured some work published at the North, (for we had no Southern publication of the kind,) descriptive of fruit and their cultivation; he next would proceed to get a catalogue of a Northern nursery, and from this he would make out his order. After years of delay and expense in their cultivation, it generally turned out that the largest portion, particularly of his apples, pears, cherries and grapes, would prove a failure. His winter pears and apples, if they matured at all, ripening early in the fall and rotting before winter—his cherry trees either dying or producing no fruit; his grapes rotting before maturity. Our venerable and intelligent friend, Dr. Wilmot Gibbs, imported many varieties of fruit trees from the North, and devoted a considerable portion of a long life to their skilful cultivation; but his efforts were attended by repeated failures. I recollect his attempt to cultivate the far-famed Newton Pippin Apple of the North. It grew beautifully, forming a fine tree, but never produced one matured specimen of fruit; they all dropped when about two-thirds grown. I visited him several times within a few years before his death, and went around with him to see his orchard and vineyard; he still appeared to be an enthusiast on the subject of Pomology, although near eighty years of age; he expressed his regret that he had spent so much time in cultivating trees of Northern origin, and said, that if he was only as young as I then was, that he would devote his lost time and expenditures to collecting and cultivating trees of Southern origin.

Our ancestors, when they first emigrated to this country, brought over seed of all their varieties of fruit; from these, hundreds of kinds were originated, many of superior quality, adapted to the various regions of our wide-spread country. The North being in advance of us in the useful arts and sciences, established large nurseries more than half a century since; a fourth of a century since they commenced their Pomological Societies. By these means they collected a vast number of foreign varieties, adapted to their own climate, but, what was of still more importance to them, they collected a great number of seedling varieties, which had been originated in the Northern and Middle States, adapted to their latitude, but very few of which were well suited to the Southern States. The South, having no nurseries of their own, purchased entirely from the North—neglecting to collect and disseminate the good varieties which had originated in their midst, and adapted to their own climate. Disappointment and disaster followed their efforts, until it began to be the settled opinion that many of the more valuable fruits, particularly winter apples and pears, could not be cultivated, with success, south of the Alleghany mountains. Within the last few years a new era has begun to dawn upon us. A few enthusiastic Pomologists have been collecting and testing varieties of Southern origin, and they have secured a list of seedling apples and peaches, which cannot be excelled by the North, and the work has only begun. Hundreds of good varieties, which are only known in certain neighborhoods, remain to be yet collected and tested. It is now no longer doubted that we can rear fine winter-keeping apples and pears.

All of our domestic varieties of fruit have originated from wild, worthless species, and have been brought to their present improved state by cultivating, cross breeding, and reproduction. Man has taken advantage of an important law which presides over both animal and vegetable life, which is this:—If you take an animal or plant from its natural wild state, and cultivate or domesticate it, you soon modify its laws of reproduction, so that it produces varieties very different from the original stock. All of our endless varieties of apples have come from the wild crabs of Europe and Asia, which are equally as worthless as our wild crab apple. The hundreds of varieties of the pear now in cultivation, have all sprang from the wild, insignificant astringent pear of the East. No fruit has been more sadly neglected with us—many of the new varieties come into bearing sooner than the apples, and are possssed of higher flavor, more nutritious and digestible than the apple. Dr. Gibbs was the only man, to my knowledge, in this or the neighboring districts, who has cultivated the pear to any extent; unfortunately, he only tried the old varieties, which have been mostly abandoned, and his soil was of a very unfavorable character.—At the late meeting of the National Pomological Convention, held in New York, among numerous exhibi-

tors, Col. Wilder, of Massachusetts, exhibited 205 varieties of the fruit of the pear, and I recollect of noticing, a few years since, that he had 500 varieties of this fruit in cultivation.

Our numerous varieties of the peach have all originated from one bitter wild species, a native of Persia and India. So long as we had to rely upon the Northern nurseries for our supplies, we could only procure trees of this fruit, to ripen their fruit from May to the first of September; now we can procure them from our Southern nurseries, to ripen in succession from May to the middle of November. But we still continue to plant the peach seed without any regard to having a succession of fruit throughout the season, and procure thereby only a supply, mostly of inferior peaches, to ripen through the months of July and August. It is known to pomologists, that the continued planting of the peach seed has a tendency to degenerate the kind, rendering it bitter and small, although, occasionally, you may succeed in producing an improved variety. With a few exceptions, there is no certainty of producing the same peach by planting the seed—the only certain method of perpetuating a variety is by budding or grafting. The Nectarine is only a variety of the peach; there are many fine varieties in cultivation, but being equally as liable to the ravages of the curculio as the plum, it is unworthy of extensive cultivation. The origin of our domestic cherries has been assigned to one or two wild species of Asia. There are several hundred varieties described in our catalogues. It is better adapted to the Northern and Middle States; still many of the finer varieties may be successfully cultivated in the South, by training them with low branching heads. The sweet varieties are an important article of diet in Germany.

The domestic Plums or Prunes, are all supposed to have originated from the wild sloe, a native of Asia and North America. Some three or four hundred kinds are described in our books and catalogues.—It would be one of our most valuable fruits for general cultivation, if it were not for the ravages of the curculio. In order to avoid this pest, it is best to plant it in a stiff clay soil, or in lots where hogs and poultry have constant access. Many of the larger varieties are very convenient and excellent for drying. The prune is used extensively as an article of diet on the continent of Europe.

The Apricot is a native of Asia. It would be one of our most desirable fruits for cultivation, as it ripens its fruits in May and June, if it were not that it blooms so early, that it is very liable to be cut off by Spring frosts. The Turkey Apricot is not liable to that objection, and is a hardy, productive variety for our climate.

For the Farmer and Planter.

BENEFITS OF FRUIT AS A DIET.

BY DR. A. P. WYLIE, OF CHESTER, S. C.

In early life I contracted a passion for the cultivation of fruit, which has been occasionally a source of pleasure and recreation to me ever since; but owing to an arduous profession, and a residence on a pipe-clay soil, the most unfavorable to the cultivation of fruit; my opportunities for indulging this taste have been quite limited.

As my profession is that of a physician, I propose to say something in regard to the propriety of making fruit a part of our daily diet. A most pernicious prejudice prevails with some persons that fruit is a great cause of sickness during our summer and autumnal months, when directly the reverse is true, where good ripe fruit is taken with any degree of moderation. It is true that green, decayed, or badly matured fruit sometimes causes diarrhœa in children; or that persons unaccustomed to a regular supply, may, occasionally, when an opportunity occurs, surfeit their stomachs, causing thereby slight illness; but persons who have a regular supply of good fruits, seldom derange their systems by it. Our ancestors came from the north of Europe, where the summers are comparatively short, and the thermometer scarcely ever ranges above the temperature of eighty degrees, they brought with them the manners and customs adapted to that temperate climate.—Now, it is notorious that there is nothing a people adhere to with greater tenacity than their accustomed food and beverages. We, to this day, generally prefer bacon or other fat meat as the chief articles of diet, and as a beverage, whiskey or other strong drink, caring not so much for culinary vegetables, and rarely making fruit a necessary part of our ordinary meals. We have consequently suffered the penalty of our disobedience to the laws of climate, by short lives, from fever and biliary diseases. The French, Italians and Spaniards, emigrating from a warmer climate, where every meal is composed chiefly of fruit and vegetables, and their beverages the light wines of their native country, their descendants still adhere to the customs of their ancestors to a considerable extent. Now, it is a fact well known to physicians of the South, that the French, Italian and Spanish families, suffer much less from the malignant fevers and biliary diseases, incident to our hot summers, than the Scotch, English, Irish and German.

I recollect well of hearing Dr. Dickson, of Charleston, dwell upon the comparative immunity of the French and Spaniards, from the yellow and other fevers about Charleston, Mobile and New Orleans.—

Both theory and the practical observation of the customs of the natives of different climes, clearly establish the truth, that the inhabitants of warm countries, require a diet almost entirely different from those of cold latitudes. The Greenlander can eat two pounds of bacon or train oil, and drink a quart of whiskey daily with impunity; whilst the natives of the tropics subsist chiefly upon cooling acid fruits peculiar to their climate. In high latitudes, a fat oily diet is essentially required, to supply the carbon necessary to generate animal heat; but in our long summers, where the temperature constantly approaches, and sometimes even rises above that of our bodies, we require but little carbon to develope heat, and much cooling acid fruits. It is most worthy of remark, in this place, that good ripe fruit contains only from 10 to 12 per cent. of carbon—the great generator of animal heat, and chief constituent of bile—whilst bacon or oil contains 66 to 80 per cent. of that material. In the process of salting and curing, meat loses many of its most important elements, necessary to the formation of healthy blood; consequently, it is found that salt bacon, or other meat, and bread even, with the addition of sugar and coffee, will not sustain human life long, without the addition of other aliments.—This has been thoroughly tested in the navy and large armies, where it was impracticable to procure fruit, fresh meat, or vegetables; under such circumstances, scurvy, a disease of the blood, invariably made its appearance, defying all treatment, unless fresh fruit and vegetables, necessary to the elaboration of perfect blood can be procured—whenever they can be obtained in sufficient quantities, the disease soon disappears. It is said that, in Europe, the lowest population, whose diet consists of Irish potatoes or oaten bread alone, which do contain all the elements of blood in their proper proportion, have a most inferior physical organization; being hinge-jointed, pot-bellied, and extremely ugly, with heads and faces like some of our rice plantation negroes.—A reasonable deduction from what I have said is this: If we wish our children to acquire a fine physical constitution, which appears to be necessary to the best mental development, health, and greatest longevity, we should, as one of the means to attain that end, endeavor to supply them daily, particularly in the warm seasons, with good ripe fruit, as a part of their aliment, for without it we cannot expect a perfect elaboration of the blood—the great pabulum from which all our organs and tissues are formed.

It has been truly said, that "no culture of intellect that does not embrace the culture of health—no wealth, no morality, and not even a religion, that does not embrace the preservation of the physical system from all deterioration, and its cultivation to the highest perfection, will ever last long. No nation or people will ever preserve the weight of influence to which they are naturally entitled among others, without manliness of development as the only reliable foundation of manliness and reliability of character."

It would be well for those who think that there is no necessity for a change in our customs, with regard to diet, to recollect that we are the most ill-formed, unhealthy, and short-lived people under the sun, occupying as fine a climate, and having as many of the comforts of life within our reach. We cannot compare with the same class of people in the south of Europe, who make fruit a chief component part of their diet.

THE PESTS OF THE ORCHARD.

THE APPLE TREE BORER.

This is the larva of a brown and white striped beetle, which makes its appearance early in June, and deposits its egg during June and July. In its larva state, it is a yellowish, or brownish white grub, with a brownish, flattened head, about one and a fourth inches in length, when fully grown. It is said to remain in this state two or three years before assuming the perfect form. According to most writers, the eggs are deposited at the collar of the tree, but, within the writer's observation, this is seldom strictly true. They are generally found between six inches and two feet above the surface of the ground; although he has taken out large numbers of them from the trunks and branches of trees, sometimes, from eight to ten feet above the collar. The idea has been advanced by a western writer, (if I mistake not) that this latter is not identical with the true Apple Tree Borer; in reply to which the writer can only say that he is only familiar with the insect in its larva form; never having watched it through its transformations; and that, in this form, they are identical, both in appearance and mode of operating, with the single exception, perhaps, that when located near the collar of the tree, they burrow in the cambium or sapwood during the season of growth, taking shelter beneath the surface of the wood on the approach of winter; while, in more elevated locations, they bore their way beneath the surface, apparently, as soon as their strength is sufficient for that purpose. If we consider them identical, this difference must be attributed to that instinct which teaches all insects to provide for the dangers to which the changes of the season may subject them.

This insect is the more to be dreaded from the fact that the injuries it inflicts are of a permanent character, and can never be fully repaired. It is, besides, so insidious in its operations, that the damage is mostly done before any but a practised eye becomes aware of its presence. Its eggs are deposited in the crevices of the bark, and, when hatched, the larva make their way inwards, leaving the bark untouched, which so far retains its fresh appearance, as only to betray to a practised and observing eye the destruction going on beneath, until made maifest by the frosts of winter. A practised observer, however, will not fail to discover, on close examination, a slight difference in the color of the bark,

which will be slightly elevated, over the injured locality, and also, somewhat yielding under pressure. On removing it, the wood beneath will be found to be entirely eaten away, and its place supplied by the fibrous powder excreted by the insect. This insidious process is sometimes carried on to such an extent as entirely to girdle the tree; in which case, it is of course, fatal; while, in other cases, a decayed spot is produced; leaving the tree liable to be broken down by high winds, or to die from the development of induced disease.

Various means are proposed, by different writers, to check the depredations of this insect; some of which, it is to be feared, are based upon an imperfect knowledge of its habits. From the fact that the beetle is nocturnal in its habits, some have recommended the lighting of bonfires in the orchard, in the evening; into which they are expected to fly, and be destroyed. Lighted lamps are also recommended to be hung up in the orchard, each with a dish of oil or soapsuds beneath it, into which they will be decoyed to their destruction. These processes are liable to objection, on the score of expense, as they must be kept up for several weeks; while, with the former, we can have no proof that the object is being effected. Indeed, they are supposed to be recommended on account of the known habit of nocturnal insects to gather about a light, rather than from any evidence of a definite character.

To prevent the deposit of the eggs, a wash is recommended, concocted of a pint of sulphur, a gallon of soft soap, and enough tobacco water to reduce the whole to the consistence of paint. It is also recommended to inject this preparation into their holes by means of a syringe. This is, doubtless, a dose they find "hard to take," and they will, therefore, give it a wide berth. It will lose its strength, by exposure to the air, and will be washed away by rains, but, if perseveringly renewed, its efficacy can hardly be doubted.

The late A. J. Downing recommended the plugging up of their holes with pieces of soft pine, dipped in tobacco water, to prevent the escape of the perfect insect. The writer has tried this process, but the insect showed his contempt for such restraint, by boring a nice round hole through the bark, in another direction, by which to escape.

Dr. Harris recommends to insert bits of camphor gum into their holes, plugging them with soft wood, to confine the odor, which is believed to be fatal to them. Others recommend to kill them by inserting a flexible wire into their holes, but it is believed that these two modes of destruction will generally prove futile, from the fact that, when the larva has once effected a lodgment, few cultivators are observing enough to detect him until the ensuing spring, when the discoloration of the bark will betray him; but, by this time, he has worked so deeply into the wood, with so many turns by the way, and has, also, packed the hole behind him so firmly with excrement, as effectually to bar the way against all such attempts.

Mr. Downing, (Revised Fruits, page 63,) recommends placing about the trunk of the tree, early in the spring, a small mound of ashes or lime, apparently for the purpose of protecting the collar of the tree against their attacks. The writer is compelled to suppose that the habits of this insect, at the east, warrant such a recommendation; but here, where its attacks are generally made above the reach of such a mound, it must necessarily prove ineffectual.

The attacks of this insect are not confined to the Apple, as it appears entirely at home in the Quince, as well as in the Mountain Ash, and in one instance, the writer extracted a thriving specimen from the trunk of a *Duke Cherry*.

In the war upon this enemy the adage, "An ounce of prevention is worth a pound of cure," applies with peculiar force, inasmuch as the evil, once inflicted, can never be fully remedied.

A careful study of its habits will establish the following facts, which, if properly and vigilantly acted upon, can hardly fail to secure exemption, to a great extent, from its attacks.

It seldom attacks healthy, vigorous trees, but prefers those that, from being recently transplanted, or from neglect, have becomes weak or stunted.

When trees are trained with tall, naked trunks, exposed to the scorching rays of the sun, the bark becomes thickened and comparatively inert, and especially so, when the tree leans so as to receive the direct rays of the sun during the hottest part of the day.—This furnishes an inviting field for the operations of the borer, as is shown by the destruction of large patches of bark, producing what are commonly called "sun scalds," but which a closer examination will invariably show to be the work of this insect.

After a careful study of the remedies proposed, and with some observation of the habits of this worst of all enemies of the apple tree, the writer would recommend growers to rely upon the following, as the most effectual remedies and preventives. Scraping off the rough bark, and washing the trunks and larger limbs with the preparation given above or with soft soap, or even lye, as often as necersary to keep up a coating of these substances during June and July. The frequent examination of the trees, and the cutting out of such as may gain a foothold. Constant vigilance to prevent trees from acquiring a lean in any direction, and before and above all, the training of trees with heads not more than from three to five feet from the ground.

T. T. LYON.

Dwarf Prolific Okra.—Some six years ago, a lady friend sent us a few seed of the dwarf okra, since which we have cultivated no other variety, and we are quite sure any one trying it will never plant any other kind. It grows only from two to three feet high, bears an immense long pod, and fruits from the ground to the end of each limb. We are surprised so little is known of it South. We sent a few seeds of it a few years ago, to Messrs. J. M. Thorburn & Co., New York, and this season received an order from them to raise five bushels of seed expressly for them. The advantage of the dwarf okra over the common kind, is in the small quantity of wood fibre or stalk, and the great proportion of pods or fruit. Roasted okra seeds make a good substitute for coffee, and, where the dwarf kind is cultivated expressly for seed, thirty or forty bushels may be raised from one acre.—*Cotton Planter.*

Changing Seed.—A writer in the *New England Farmer* says his potato crop has increased from fifty to one hundred per cent., by procuring seed potatoes which grew on an entirely different soil, fifteen or twenty miles apart from his. This plan of changing seed every year is a good one, either for potatoes or any other seed, such as grain and garden seeds; and even if the change is made only between cultivators in the same vicinity, it is still beneficial.

Domestic Economy, Recipes, &c.

To Cure Bacon.—For every 100lbs of fresh Pork take 5 oz. saltpetre, 5lbs brown sugar, or 5 pints of molasses, 8lbs Turk's Island salt, and 3 gallons of water. Boil the salt in the water until dissolved, then add the other ingredients, and when dissolved allow to get cold. The pork must be cut up and also allowed to get cold—then pack it in tight casks or tubs, and pour on the pickle, keeping the meat pressed down by a weight, so that it may be covered by the pickle. In 4 or 6 weeks, according to the weather, the meat should be taken out and hung up, and when dry, smoked, but only on dry days should smoke be made under it. In warm situations, on the seaboard, the meat ought to be rubbed once with the mixture without the water, and packed away.

For Curing Corned Beef.—For each 100lbs of beef take 5 oz. saltpetre, 5lbs brown sugar, or 5 pints of molasses, and 5 qts Turk's Island salt. Pound the saltpetre and salt separately, then mix together carefully all these ingredients—rub the meat and pack down carefully in a tight barrel or tub, and in about one week it will be fit for use, as corned beef, and afterwards as salt beef, either smoked or not. For several days after it is put down it will answer quite as well as fresh for soup.

To Cure Corns.—A great blessing has been conferred upon the family of the Publisher of the *Farmer and Planter*, from the information that lemon-juice will eradicate those painful pests to pedestrians, corns. It is done, by simply dropping one drop of juice on the corn, and rubbing it in, every night on going to bed. Pursue this course for one month, and we are satisfied great relief will be found. This one receipt is worth a whole year's subscription, and we merely claim that from all who apply the remedy.

How to Prevent Sore Shoulders in Working Horses.—An exchange says, the plan we have tried and never found to fail, is, to get a piece of leather, and have it cut into such a shape as to lie snugly between the shoulders of the horse and collar. This fends off all the frictions, as the collar slips and moves on the leather, and not on the shoulders of the horse. Chafing is caused by friction, hence this remedy is quite a plausible one, and is much better than tieing slips of leather, or pads of sheep skins under the collar.

Almond Custard.—One pint of new milk or cream, one teacup of white sugar, one-quarter of a pound of almonds, blanched and pounded, two spoonsful of rose-water, yolks of four eggs—stir these ingredients in a spider, over a slow fire, until it is the consistency of cream, then remove it quickly to a deep dish or cups. Beat the whites of the eggs with a little sugar, a few drops of brandy, and lay lightly on the top.

Simple Cure for Croup.—We find in the *Journal of Health*, the following simple remedy for this dangerous disease. Those who have passed nights of agony at the bedside of loved children, will treasure it up as a valuable piece of information:—If a child is taken with croup, apply cold water—ice-water, if possible—suddenly and freely to the neck and chest with a sponge. The breathing will instantly be relieved. Soon as possible let the sufferer drink as much as it can, then wipe it dry, cover it up warm, and soon a quiet slumber will relieve the parent's anxiety, and lead the heart in thankfulness to the Power which has given to the pure gushing fountain such medical qualities.

Silver Pie.—Peel and grate one large white potato into a deep plate, add the juice and grated rine of one lemon, the beaten white of one egg, one teacup of white sugar, and one teacup of cold water—pour this into a nice under-crust and bake. When done, have ready the beaten whites of three eggs, half teacup of powdered sugar, a few drops of rose-water—pour this over the pie, and return to the oven to set. When ready for table lay a few lumps of currant jelly on the top. Have these pies just cold for dinner.

Washing Flannels.—Make a hot suds with good soft soap, put in the flannels and let them lie a few minutes, then wash thoroughly with the hands.—Have ready some boiling water, (soft is best,) dissolve a little blueing, or indigo, and pour on it sufficient of the hot water to cover the goods, put them in and let them remain until cool enough to wring.—Dry in the air, and iron when slightly damp. Iron on the right side. I have followed this mode for years, and it has never failed to make them appear like new, even when almost entirely worn out.

Golden Pie.—Take one lemon, grate the peel, and squeeze the pulp and juice in a bowl—be sure to remove every seed—to which add one teacup of white sugar, one teacup of new milk, one tablespoonful of powdered starch, and the yolks of three eggs, well beaten; pour this mixture into a nice paste crust, and bake slowly. Beat the whites of three eggs to a stiff froth, and when the pie is just done, pour it over the top evenly, and return to the oven, just to stiffen, not brown.

Ointment for Burns.—Take half a pint of white manure from under the hen-roost, and simmer it in fresh lard ten minutes, then strain it off into a tin box and it is ready for use. The offensive odor will pass off in simmering, which is but trifling, and you will have an ointment that will heal a burn quicker than any other ever invented.

Mother's Pudding.—Five eggs, 1 quart of sweet milk, 3 teacupfuls of flour, and a little salt; beat the whites of the eggs to a stiff froth, beat the yolks in flour after, adding a teacupful of milk; to the batter add a quart of milk; and, lastly, add the whites.—Beat well, and bake thirty minutes. Trim to suit the taste.

Broiling Beefsteak.—Bruise till very tender, then put over a good bed of coals for a few minutes. When cooked a little, take it off, dredge slightly with flour, and butter will finish the working; then add half a cup of cold coffee to the gravy, and you will find a gravy good enough for any of your "leige lords."